



DYNAMIC ENTERPRISE - THE CATALYST FOR GLOBAL PROTECTION

“Develop, integrate, acquire, and sustain soldier and NBC defense technology systems, and services to ensure the decisive edge and maximum protection for the United States. Provide for the safe storage, treaty compliance and destruction of chemical materiel.”

On October 1, 1998, in a strategic move by the Army, two premier commands joined forces to combine soldier and chemical-biological expertise to better protect our military and civilian communities. The new command – the **U.S. Army Soldier and Biological Chemical Command (SBCCOM)**, comprises the former U.S. Army Chemical and Biological Defense Command (CBDCOM) at the Edgewood Area of Aberdeen Proving Ground, Maryland, and the U.S. Army Soldier Systems Command (SSCOM) located in Natick, Massachusetts.

SBCCOM is a commodity command with full, integrated life cycle management and resultant RDA synergy, all focused on our customers. The merged command encompasses the chemical and biological defense mission and soldier protection in a single command, providing the same agility and flexibility used by Program Executive Offices. In addition, SBCCOM combined two Department of Defense missions for which the Army is the Executive Agent: food and chemical-biological defense. The joined business areas can exploit our significant experience in systems development and integration, enhance our core capabilities and provide the impetus for product line and service expansion, a critical asset for U.S. defense forces. This alliance meets the objective of integrating a National asset in individual and collective protection for armed forces, installations, and domestic protection. This newly formed AMC subordinate command has three Enterprises.

1. The **Research, Development and Acquisition Enterprise (RDA)**, which is comprised of:

☺ **The Research Development and Engineering Center** – the Edgewood and Natick Research, Development and Engineering Centers were merged into a single RDEC. Within this RDEC, much of the identities of these centers remain intact. They have been renamed the Edgewood Chemical Biological (CB) Center and the Natick Soldier Center. In many areas, we are gaining efficiencies, new business opportunities, and joint ventures as a single combined RDEC.

☺ A Department of Defense model **Integrated Materiel Management Center (IMMC)** that provides U.S. forces with the capability to survive and sustain mission operations on a **21st Century** digitized battlefield through application of NBC defense, obscuration, flame, non-lethal weapons science and technology, engineering, products, and life cycle support services. The IMMC will have a virtual linkage among Rock Island, Edgewood, Philadelphia, and Natick – making us a full-service commodity command (see detailed article on back of contents page).

☺ **The Project Manager for NBC Defense Systems** – this Project Manager is responsible for Army and Joint development, testing, production, fielding, and logistics support of assigned nuclear, biological, and chemical defense systems to include detection, respiratory protection, and reconnaissance systems.

☺ ***The Product Manager for Smoke/Obscurants*** – this Product Manager is responsible for the development, integration, production, fielding, and logistics support of single and multispectral smoke/obscurant systems to dominate and control the electromagnetic spectrum.

☺ ***The Program Director for Biological Defense Systems*** – this Program Director is responsible for development, production, fielding, and logistics support of assigned biological defense systems in the area of detection.

☺ ***Project Manager Soldier*** – this Project Manager serves the needs of the soldier by managing the development, configuration, and fielding of specific fully integrated soldier systems through PM-Land Warrior; manage the Soldier Enhancement Program research, development, technology engineering and fielding through PM Enhanced Soldier Systems; maintain full life cycle responsibility for clothing and individual equipment through PM Enhanced Soldier Systems; and integrate all non-system individual items developed by various Program Executive Officers/Program Managers and Research, Development and Engineering Centers into an effective balanced system.

☺ ***Product Manager for Soldier Support*** – this Product Manager develops, procures, and fields quality soldier support products required by the soldier and the Force Projection Army. They are responsible for the centralized management, program oversight, and direction for the development, production, and deployment of items in the soldier support commodity areas. These consist of Army field feeding systems, aerial delivery systems, unit/organizational equipment, field service equipment, and shelters.

☺ ***Product Manager Force Provider*** – The development of this Product Manager was a result of inadequate living conditions for our soldiers during Operation Desert Shield/Storm. Force Provider is a containerized, highly deployable “city,” designed and engineered to provide climate-controlled billeting; dining facilities; showers; latrines; laundry; and morale, welfare, and recreation facilities in modules for 550 soldiers. It has external forces air heating and cooling, similar to home heating ventilation air conditioning systems. It is packaged complete with water and fuel storage and power generation and distribution systems.

The RDA Enterprise also leverages its core and intellectual capabilities by providing products and services to vital national programs such as chemical treaty verification and environmental remediation in partnership with government, academic, and private organizations.

2. The **Operations Enterprise** manages Chemical Weapons Stockpile, provides CB Emergency response, implements Chemical Weapons convention, manages the DoD Domestic Preparedness program, and manages six installations.

3. The **Strategy, Resourcing and Support Enterprise** includes the home base, strategic planning, resource management, human resources, corporate information, and command support.

The command will have intensive management for all soldier items and soldier support and will elevate soldier advocacy to the 2-star level. Consolidation also reduces the number of major subordinate commands and achieves manpower savings in headquarter elements. This strategic alliance provides customer-centered, integrated teams, responsive services, and a robust strategy for achieving materiel modernization for total defense readiness.



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This document is distributed to over 900 addressees throughout the Joint Services, industry, and academic R&D community and would be a good vehicle to publicize what is going on where you are. Please submit articles to Technical Director, Edgewood Chemical Biological Center, ATTN: AMSSB-RAS-C, Aberdeen Proving Ground, MD 21010-5424, or by electronic mail to sbrd-asc@apea.army.mil. All submissions are accepted at the discretion of the editor and are subject to editing. This document is prepared for publication by the Corporate Enhancement Team:

Team Leader: Brenda C. Eckstein
Editor: Joanne N. Coale

Information Specialist: Joann J. Brucksch
Information Specialist: Regina F. Ryan

SBCCOM AT ROCK ISLAND

The merger of CBDCOM and SSCOM brought changes to many areas in our new Command. At Rock Island, the changes had been especially significant. Before the merger, the CBDCOM contingents (Product Engineering Office) at Rock Island were a part of the Engineering Directorate in the Edgewood Research, Development and Engineering Center, providing technical support and teaming with the acquisition, logistics, and sustainment elements in TACOM-ACALA responsible for fielded chemical-biological commodity items.

After the merger, as part of the overall plan to establish an IMMC for SBCCOM, the chemical-biological elements in TACOM-ACALA were combined with the resident CBDCOM contingents, resulting in an increase of personnel for SBCCOM at Rock Island.

This significant change now provides SBCCOM full functional capability to perform life-cycle management within the Command for the chemical-biological items. The functions at Rock Island are now integrated into six product/commodity Integrated Product Teams (IPTs). Each IPT has all the logistics, maintenance, supply, and engineering functions in it under SBCCOM management. More importantly, the IPTs also have the matrix support of the TACOM Acquisition Center personnel (Contract Specialists and PCOs), physically collocated with them. In addition, there are two Support Teams responsible for Resource Management, Fielding, NET, CCSS, and other IMMC requirements. All together, there are about 121 SBCCOM people at Rock Island, including three military.

True Life Cycle management starts with the developers, includes everything in between, and ends with demil. Our vision is that all the functions at Rock Island will be further integrated with the R&D community and the PMs as team members on chemical-biological commodity/systems teams from cradle to grave. We will also include customers and contractors as ad hoc team members or partners as appropriate to perform our mission in the fullest teaming mode.

For further details and information, please contact one of the following:

Peter Lui — Site Manager (DSN 793-5088, luip@ria.army.mil)

Bob Gardner — Engineering Manager (DSN 793-4338, gardnerr@ria.army.mil)

Larry Light — Logistics Manager (DSN 793-2103, lightl@ria.army.mil)



NEW DEPUTY FOR ACQUISITION AND READINESS SBCCOM

COL(P) Jesus A. “Yogi” Mangual was assigned as the Deputy for Acquisition and Readiness (DAR) at SBCCOM on November 16th. The DAR has oversight of SBCCOM’s RDA Enterprise. He is also the Natick Installation Commander.

COL(P) Mangual was born in November 1949 in San Juan, Puerto Rico, and is a resident of Plainfield, VT. He was commissioned a Distinguished Military Graduate from Norwich University in May 1973 with a Bachelor of Arts degree in Economics and a Regular Army commission in the Quartermaster Corps with an Infantry detail. In 1986, he received a Master of Science degree in Contracts and Acquisition Management from the Florida Institute of Technology.

COL(P) Mangual is a graduate of the Infantry Officer Basic Course, Basic and Advanced Airborne Courses, Parachute Rigger Course, Quartermaster Officer Advanced Course, Basic and Advanced Acquisition Management Courses, the Program Manager’s Course of the Defense Systems Management College, the Army’s Command and General Staff College, and the Industrial College of the Armed Forces.

COL(P) Mangual was first assigned to Fort Bragg, NC, in 1973 serving as an Infantry Platoon Leader, Rigger Platoon Leader, and Deputy Division Parachute Officer in the 82nd Airborne Division.

In 1976, COL(P) Mangual was assigned to the Republic of South Korea as Commander, 4th Quartermaster Airdrop Detachment (ABN).

He returned to Fort Bragg in 1979 and served as the Division Support Command’s Plans and Operations Officer and as Commander, Alpha Company, 407th Supply and Service Battalion (ABN), 82nd Airborne Division.



Following his second tour at Fort Bragg and graduation from the Defense Systems Management College, COL(P) Mangual was assigned to the U. S. Army Communications and Electronics Command (CECOM) in Fort Monmouth, NJ, where he served as a Procurement Contracting Officer and Procurement Branch Chief.

In 1987, following his attendance at Command and General Staff College, COL(P) Mangual was assigned to Germany where he served as Support Operations Officer and Battalion Executive Officer for the 299th Support Battalion, 1st Infantry Division (Forward).

In 1990, he was assigned to Fort Lewis, WA, where he served with the 9th Infantry Division (Motorized) as the G-6 Plans Officer and Commander of the 109th Forward Support

Battalion. Following battalion command, COL(P) Mangual was assigned to I Corps Headquarters to serve as Chief of the G-4 Plans Division.

During the period February through June 1992, COL(P) Mangual deployed to Guantanamo Bay, Cuba, serving as the Deputy Commander of Army Forces, Joint Task Force Guantanamo, in support of the Haitian Migrant Humanitarian Relief Effort.

In July 1995, upon graduation from the Industrial College of the Armed Forces, COL(P) Mangual was assigned to the Office of the Secretary of Defense, where he served as the Executive Officer and Military Assistant to the Honorable Carolyn H. Becraft, Deputy Assistant Secretary of Defense for Personnel Support, Families and Education.

Following his tour in the Pentagon, he returned to Fort Bragg, NC, where he served as Commander, 46th Corps Support Group (ABN) from October 1995 to October 1997.

COL(P) Mangual's most recent assignment was in the Pentagon where he served on the Army Staff as the Chief, Supply Policy Division, Supply and Maintenance Directorate, Army Deputy Chief of Staff for Logistics.

COL(P) Mangual's awards include the Defense Superior Service Medal, Legion of Merit with one oak leaf cluster, Army Meritorious Service Medal with three oak leaf clusters, Army Commendation Medal with three oak leaf clusters, Army Achievement Medal, Humanitarian Service Medal, Master Parachutist Badge, Parachute Rigger Badge, OSD Staff Badge, and Army Staff Badge.



LOGISTICS ASSISTANCE REPRESENTATIVES (LARs) ADDING VALUE TO SBCCOM EQUIPMENT

You may not have heard of Logistics Assistance Representatives (LARs) before; and if you have, you may not be quite sure what they do. The Soldier Systems Command [now part of the Soldier and Biological Chemical Command (SBCCOM)] gained twenty LARs on October 1st, 1997, because of the dissolution of the U.S. Army Aviation and Troop Command. With the recent SSCOM/CBDCOM merger, SBCCOM gained four additional LARs. These LARs are scattered throughout the world – in CONUS, Korea, Europe, Hawaii, and Alaska.

Briefly, LARs provide logistics support in the form of maintenance and supply assistance and act as a conduit for information to the field from SBCCOM as well as from the field to SBCCOM. They perform this mission in peacetime as well as during a contingency. LARs differ from other organizations within SBCCOM that may have similar or overlapping missions in that they do 100% of their job in the field, everyday, with the soldiers they support.

The LARs' true worth is that they add value to the products fielded by SBCCOM. How can I say this? They do not design or develop anything. They do not produce anything. They do not manage any programs nor do they distribute or field any SBCCOM items. To understand how I can make this statement, consider a recent paradigm shift in the field of logistics.

A Revolution in Logistics:

In the past, production was the name of the game. The glory went to the people who could make things better, faster, and cheaper. The analysis and optimization of production techniques were where all the money and brainpower went. Logistics, if it was considered at all, was considered merely a way to support production – how to get the raw materials in the door and how to move the finished product out. Little thought was given to product improvement.



LARs at Fort Bragg

Things have changed. A primary focus in industry today is the design and optimization of logistics systems. Initially, the Japanese and the automotive industry started things off with innovative in-bound logistics concepts such as Just-in-Time (JIT) delivery and Kanban. These grew into still more effective techniques such as

Just-in-Time II and Manufacturing Resource Planning. Next, the out-bound system was integrated with the in-bound under Integrated Logistics Support and Distribution Resource Planning. Over the last several years, a total systems approach to logistics, called Supply Chain Management, has become popular and very effective. The basic tenant of Supply Chain Management is that all organizations, and even other companies, are intimately integrated into the logistics system.

Because of this systems approach, managers and CEOs are no longer only concerned with the cost of producing a product. Their emphasis now is on the value a product has to a customer. Moreover, one of the major drivers of value is logistics. It is logistics that ensures that the product is at the right place, at the right time, in the right quantity, and in the right condition. Not only does a good logistics system lower the cost of a product, it raises the value of that product to the customer: the number one focus.

In the commercial world, adding value to a product means higher customer satisfaction, a greater market share, and more profits. For the military, adding value to products means better morale, higher equipment readiness rates, and a force better able to carry out its peacetime and wartime missions.

How LARs Add Value

Let us start with an analogous situation in the automotive industry. Consumers buy cars for different reasons. Some are more interested in quality and dependability, while others concentrate on price, affordability, performance, or looks. But more people buy cars for the customer services the manufacture offers than for any other reason: Of people polled in 1988, 35 percent said that customer service was the number one criteria they used when selecting a car. It is very apparent that consumers feel that customer service adds value to a product. The automotive industry realized this several years ago and have been trying to out do themselves on extended warranty plans ever since. Companies on the cutting edge of logistical operations today consider customer service to be a link between logistics and marketing. Logistics – customer service – sells products.

Just as in the example cited above, when SBCCOM fields a piece of equipment, the involvement of SBCCOM does not end. There is a worldwide customer service network already in place to add value to SBCCOM equipment. The relationship between SBCCOM and Army units in the field continues, and it is the LAR who fosters

that relationship. LARs are the Command's face – *its eyes and ears* – in the field. The LARs disseminate technical information on fielded items, information on soon-to-be fielded and proposed items, and supply-related information from SBCCOM as well as the Defense Logistics Agency. Conversely, LARs are the soldiers advocate back at the Command. They provide needed intelligence on equipment maintenance problems, problems in usage, and supply-related problems.



LARs build their relationships by working with assigned units in their geographic area everyday. When their unit deploys, they deploy with them. In operations in Bosnia alone, there



have been three LARs deployed from SBCCOM (William Kurz, Michael Reynolds, and Jake Cordova). LARs sleep in the same tents, eat the same food, and work hand-and-hand with the soldiers they support for up to 6 months at a time. Both the LAR and the soldiers they support share the risks of any successful operation. (Including the risk of dying: in 1991 a LAR was killed in Saudi Arabia on his way back from Iraq during the ground war phase of Operation Desert Storm.)

LARs also add value to SBCCOM products by providing a tangible service. They provide maintenance and supply assistance. LARs provide formal classroom training on the operation and maintenance of SBCCOM items. They also provide hands-on and on-the-job-training. In

addition, they assist in troubleshooting and repair. LARs track critical high priority requisitions, communicate with item managers at SBCCOM and the Defense Logistics Agency, and troubleshoot supply system failures. LARs are also crucial to SBCCOM's Quality Deficiency Reporting program because they are the ones who identify many of the equipment problems in the field, and they are the ones who urge the soldiers to complete the Quality Deficiency Reporting forms.

It is difficult to put a price tag on the value added to SBCCOM equipment by the LARs. One indicator may be readiness rates, which have remained steady although the Army has lost and continues to lose resources every year. One area where a quantitative measure can be cited is the Logistics Assistance Cost Avoidance Program (LAPCAP). In Europe alone in FY98, LARs (AMC-wide) saved USAREUR \$49,921,722. These savings were brought about in many ways; for example, identifying items misrouted to Defense Reutilization and Marketing Office, showing a soldier how to repair an item instead of ordering a new one, Army Master Data File price challenges, and instructing soldiers in correct troubleshooting procedures.

Conclusion:

LARs are the critical link in the intimate relationship between SBCCOM and Army units in the field. They are the conduits of information both from the Command and to the Command. LARs also provide a tangible service: they are able to provide maintenance and supply assistance for every item of materiel that SBCCOM fields. Whenever a unit "buys" an SBCCOM item, the unit also buys a piece of the SBCCOM LAR program (at no extra cost!) The LARs are SBCCOM's Wal-Mart in the field: the LARs provide the soldier one-stop shopping concerning problems with any piece of SBCCOM equipment at "everyday low prices."

The revolution in logistics that focuses on customer satisfaction by providing a logistics system that adds value to products is what the SBCCOM LAR mission is all about.

This article was authored by Mr. Gregory W. Schech.

POC: Mr. Stephen DeBeradinis, LAR Coordinator, IMMC, Commercial (508) 233-6248, DSN 256-4471, or email sdeberad@natick-amed02.army.mil



CHEMICAL DEFENSE EQUIPMENT (CDE) GO-TO-WAR PLAN

In 1997, a Chemical Defense Equipment (CDE) readiness review was performed by the Chief of Staff, Army. The review revealed discrepancies in the stockage of CTA/Class II CDE; most notably that the units were not purchasing the equipment critical to meet wartime requirements. Those findings prompted the Army Chief of Staff to form a committee, consisting of a Council of Colonels and General Officer Steering Committee to formulate a solution to the stockage problem. A multi-year solution to address this issue evolved and was dubbed the *Chemical Defense Equipment Go-to-War Plan*.

The *Go-to-War Plan* directed a standardized individual CDE basic load. The equipment provides the soldier with the basic chemical and biological protection needed for initial deployment. The basic load consists of 11 items, which are listed in the following table.

Equipment Type	Quantity
1 M256 Detector Kit	1 kit per squad
2 M9 Detector Paper	1 per 5 individuals/1 per major piece of equipment
3 M8 Detector Paper	1 per individual
4 M291 Decon Kit	2 kits per individual
5 M295 Decon Kit	1 kit per individual
6 C2A1 Filters	2 per mask/4 per aviator mask
7 Hood	2 per individual
8 CP Helmet Covers	2 per individual
9 Overgarments	2 per individual
10 CP Gloves	2 per individual
11 CP Overshoes	2 per individual

Items one through seven on this list are managed by the Soldier and Biological Chemical Command (SBCCOM). The remaining items are managed by the Defense Logistics Agency (DLA).

Stockage of this CDE equipment at either installation or depot is based on unit deployment timelines. Force Package (FP) 1, Forward Support Package (FSP) 1, and all USASOC units will

maintain 100 percent of their CDE basic load on their installation. OCONUS forces will maintain 100 percent of their CDE basic load in theater. CONUS FP2, FP3, FSP2, Reserve Components, Enhanced Separate Brigades, and other CS/CSS support elements' CDE basic load will be maintained by the Army Materiel Command (AMC) and issued when directed by Headquarters, Department of the Army.

The role of SBCCOM in this area is two fold. SBCCOM is the full life cycle manager for the first seven items on this list, and therefore, manages and acquires these items for all the Armed Services. Secondly, SBCCOM is the manager of the CDE stockpile that will be maintained within AMC. The principal responsibility for these functions resides with the SBCCOM element located at Rock Island Arsenal. Funds will be provided from AMC to SBCCOM for management, control, and execution of the stockpile program. The estimated annual cost for SBCCOM program management is \$130 thousand.

Funds to purchase the CDE are provided by the Training Resource Model. This funding is part of a unit's indirect OPTEMPO expenses. FP1, FSP1, and OCONUS units will expend their annual CDE Training Resource Model allocations each year on CDE.

Headquarters, Department of the Army will direct a portion of the Training Resource Model allocation for CONUS FP2, FP3, FSP2, Reserve Components, Enhanced Separate Brigades, and other CS/CSS support elements' to Headquarters AMC. SBCCOM will use these funds to purchase and manage these CDE stocks. The Training Resource Model will continue to provide these units with approximately \$10 per soldier to purchase NBC training items.

The CDE stockpile will be maintained at Lexington Blue Grass Army Depot. Six of the seven SBCCOM-managed items will be collocated with the remaining wholesale inventory for these items. However, these items will be designated with a unique ownership code so that they cannot be issued to any other customer. This supply management approach provides the most flexible, cost-effective means of dealing with both the stockpile and remaining wholesale inventory for these items. The other five items will also be placed in the unique ownership code; but because of management, cost, and location constraints will not be collocated with the remaining wholesale inventory.

This unique ownership code will be the vehicle for reporting stockage and readiness levels to higher headquarters. Readiness reporting will be done in terms of brigade sets and include any other Department of the Army directed information required.

The SBCCOM-managed items will be purchased through the normal wholesale supply system. DLA-managed items will be obtained from the SBCCOM war reserve stockpile and subsequently replenished.

The CDE stockpile program is a \$60 million plus program, extending through FY07. Full stockage of FP2 and FSP2 units is planned to be completed by FY04. The remaining units will be equipped by the end of FY07. In total, approximately 170,000 soldiers will be equipped through the CDE stockpile efforts.

POC: Ms. Regina F. Woodard, SBCCOM-Rock Island, Commercial (309) 782-0310, DSN 793-0310, or email woodardr@ria.army.mil

HELP LINES/TOLL-FREE NUMBERS

	<i>Telephone No.</i>	<i>fax no.</i>
Chemical Maintenance	Germany 0130810280 Korea 0078-14-800-0335 CONUS 1-800-831-4408	1-410-671-3912 (TOLL CALL)
Smoke/Obscurants	1-888-246-1013	1-410-671-2702 (TOLL CALL)
CB Helpline (NONEMERGENCY TECHNICAL ASSISTANCE)	1-800-368-6498	1-410-612-0715 (TOLL CALL)
Environmental Quality	1-410-612-6588 (TOLL CALL)	1-410-671-8484 (TOLL CALL)
Operational Forces Interface Group (OFIG)	1-508-233-5341 (TOLL CALL) DSN 256-5341	

OPERATIONAL FORCES INTERFACE GROUP (OFIG)

In August of 1984, an annual *Installation Visit* program was established by the U.S. Army Natick Research, Development and Engineering Center (now the Natick Soldier System Center). The objective of the *Installation Visit* program was to survey and interview service members who had recently returned from a field training exercise or deployment to determine the functional performance and user satisfaction level of fielded items. These items include Combat Rations, Food Service Equipment, Clothing and Individual Equipment, Shelters, and Aerial Delivery Systems.

Under the U.S. Army Soldier Systems Command [which recently merged with the Chemical and Biological Defense Command to form the U.S. Army Soldier and Biological Chemical Command (SBCCOM)], the *Installation Visit* program was expanded to gain feedback for basically everything a soldier wears, carries, or consumes. Data were gathered, for example, on several individual weapons and their interface with the soldier. The data were shared with the U.S. Army Armament Research, Development and Engineering Center.

To obtain customer feedback, Natick uses a unique organization known as the ***Operational Forces Interface Group (OFIG)***. This group consists of Equipment Specialists who have extensive military experience and are responsible for coordination and liaison activities, and Engineering Psychologists, who are responsible for the development of the questionnaires and interviews, data collection, analysis, and preparation of the final report. Installation and field visits are conducted with units of all major military activities, including the U.S. Air Force, the U.S. Navy, and the U.S. Marine Corps. Troops in these units, largely comprised of lower grade enlisted personnel, are interviewed and complete questionnaires on the functional adequacy of Natick-developed items as well as soldier items

developed by other Commands. These mechanisms allow soldiers to express their ideas for new or improved equipment. To date, over 47,000 surveys have been collected. These provide valuable information in developing state-of-the-art equipment and supporting a high quality of life for soldiers.

In order to measure quality, product acceptance, customer satisfaction, and operational performance, the command made extensive use of these surveys and interviews, both internally and externally. At the completion of every field survey, the data are reported to top management, project officers, and customers. Top management uses performance trends from these data to determine viability and prioritization of existing and planned projects. They also build process improvements into strategic and business plans based on the analysis of the data. Project officers use these data to correct deficiencies. These tools provide a vital measure of the suitability and acceptance of Natick's products and services, as well as areas for product or service improvement.

With the October 1st merging of the Soldier Systems Command into SBCCOM, the expertise of this group becomes available to the chemical-biological community.



The soldiers' input is collected through the following methods:

Installation Visits: The training schedules for JRTC and NTC and also the Umbrella weeks for major installations are received from Forces Command on a yearly basis. Units are selected from these lists by OFIG, and a message is sent to Forces Command requesting an Installation Visit with these units. Also, during the selection process the Air Force, Navy, and USMC are contacted and requested to provide a unit to participate in the Installation Visit during the fiscal year. The surveys are prepared based on the type of unit that will be surveyed; i.e., Infantry, Armor, Engineers, etc. The visits are normally scheduled within a two-week window of the units return from a Major Training Exercise or deployment.

All personnel who participate in the visit are given a briefing on the organization, its mission, and the purpose of the visit. The personnel then complete a survey on the equipment and approximately 10% are interviewed by an Engineering Psychologist member of the OFIG Team. Upon completion of data analysis, an OFIG report is distributed to the Command, Directorates, Project Manager Soldier, TRADOC System Manager Soldier, and the unit that participated in the visit. While conducting an Installation Visit, OFIG personnel visit the Central Issue Facility (CIF) to discuss problems or trends with equipment that the CIF personnel have observed. Clothing Sales Stores and boot repair facilities run by AAFES are also visited to see what soldiers are purchasing and what type of soles they are replacing on their boots. Whenever possible, the Commander of the unit being surveyed is briefed on the organization, the surveys, and the function of the OFIG office. In many cases, commanders volunteer to assist us in future equipment evaluations.

Evaluations: At Natick, OFIG is the vehicle for conducting prototype or new equipment evaluations or surveys with soldiers. During the development of a new item, the project officer contacts the OFIG office. It is OFIG's responsibility to locate the type unit that is suitable for the execution of the evaluation or survey. In

order to locate a unit, OFIG maintains a listing of units that the commanders have volunteered their assistance. During these evaluations, OFIG personnel and the project officer take the opportunity to discuss various topics with the command and soldiers on our items.

Evaluation at Ft. Campbell, KY



This information is relayed to the command and the responsible project officers through trip reports, which are required after an Installation Visit, Evaluation, or Survey.

Additionally, through the Soldier Enhancement Program (SEP), a yearly world-wide data call is released soliciting ideas for improving operations and identifying deficiencies. The purpose of this program is to improve the lethality, command and control, sustainability, mobility, and survivability for all categories of soldiers through accelerated acquisition. The process encourages everyone including commanders and soldiers in the field, combat and materiel developers, as well as industry to submit proposals. Proposals are screened; and once a battlefield or combat training deficiency is substantiated, proposals are presented at a SEP Review and compete for funding in the upcoming fiscal year. The SEP process is successful because an innovative acquisition strategy is applied to each project. This includes tailored project documentation followed by a market survey, candidate evaluation and down select, tailored testing, adoption decision, and acquisition or fielding. The process is designed to maximize solutions to the field in 36 months or less.

Exhibits and Briefings: OFIG is responsible for the coordination, planning, layout design, and execution of all Natick external technical exhibits and multi-organizational internal exhibits. We use exhibits as a forum to update users, customers, and potential customers on our capabilities, areas of responsibilities, and the latest RD&E efforts as well as yet another opportunity to obtain feedback on soldier items and hear about field innovations introduced by soldiers.



Exhibits provide a one-on-one interface between the soldiers of all grades and Natick management and project officers. OFIG has presented an exhibit at functions such as The Newly Appointed Brigadier Generals' Conference, Armor Commanders' Conference, Special Operations Conference, Naval War College, Military Police Warfighters' Conference, INSCOM Commanders' Conference, National Guard Aviation Safety Conference, SAFE Conference, Inter-Service Conference, and the Chemical-Biological Advanced Planning Briefing for Industry.

OFIG also conducts briefings to various units/functions to update the senior level NCOs on new soldier items and to solicit input. OFIG has conducted briefings at the West Pac, USAREUR, Korea, Forces Command, TRADOC, and AMC Sergeants Major Conferences, the 101st Division Commanders' Conference and the U.S. Army SGM Academy has requested a briefing for each graduating class.

Quick Reaction: As a part of the command's Quick Reaction Team, OFIG is called upon to quickly field a team to investigate problems with equipment or to support deployed units. OFIG personnel have been deployed to Somalia, Macedonia, Germany, Saudi Arabia, Bosnia, and Hungary. During these deployments, OFIG personnel received feedback from Commanders and soldiers on Natick equipment, which was brought back to the Command and project officers to take action upon.



Scientist and Engineers Field Experience with Soldiers (SEFEWS): Over 30 Natick personnel have participated in the SEFEWS program; and while working and living as a "squad member," the project officers have the opportunity to discuss first hand with soldiers living in a field environment problems and ideas that the soldiers have with the equipment they are currently issued. Suggestions and ideas are brought back to the work environment by the project officer.

User Hotline: OFIG manages and maintains the User Hotline (DSN 256-5341), which is advertised through the above techniques as well as military publications. OFIG monitors all incoming phone calls, both technical and administrative, and ensures each request is answered in a timely manner.

POC: Mr. David Cheney, Chief OFIG, Commercial (508) 233-4307, DSN 256-4726, or email dcheney@natick-emh2.army.mil

ADVANCED AMPHIBIOUS ASSAULT VEHICLE

Since the early 1980s, the Edgewood Chemical Biological Center has been “preaching the gospel” to combat vehicle Project Managers stressing the need to address Nuclear, Biological and Chemical (NBC) Survivability architecture* on their platforms. NBC Survivability architecture has been, in virtually all cases, a piecemeal approach of addressing the need for NBC defense systems on weapon systems’ platforms. This integrated NBC Survivability architecture approach has only been a picture on a

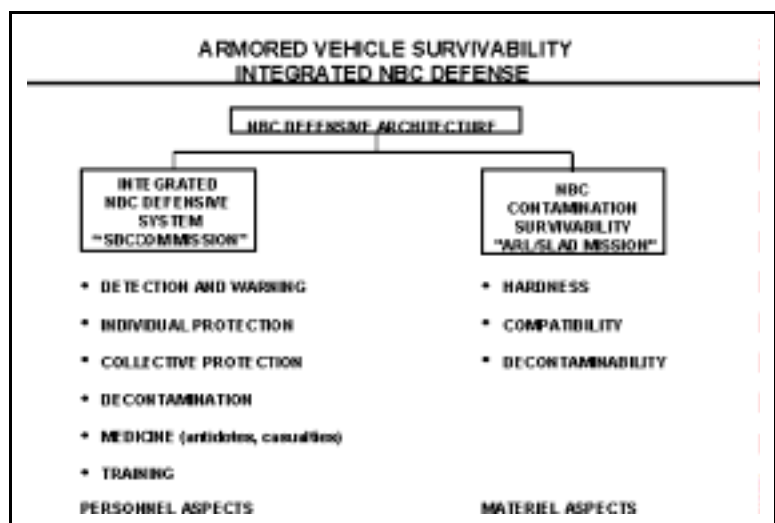


An artists's concept of the AAAV

viewgraph and a dream in the minds of NBC equipment integrators. These will all change when the U.S. Marine Corps’ first Advanced Amphibious Assault Vehicle (AAAV) prototype rolls out in August 1999.

The AAAV is the next generation in a long line of Marine Corps armored, tracked amphibious combat vehicles dating back more than a half-century. The AAAV is designed to provide a reinforced Marine rifle squad (18 combat-equipped infantrymen) and a crew of three, with the ability to launch operations from over-the-horizon at sea, and transport to land at speeds in excess of 25 knots, three times the current platform’s speed. The AAAV’s land speed and cross country mobility are comparable to the M1 Abrams series main battle tank, allowing it to conduct combined arms ground combat missions. It will provide the principal means of armored protection for Marines during land and water operations, including operation on the NBC contaminated battlefield.

**NBC Survivability architecture is broken into two aspects. One aspect is protection of personnel and equipment and the second aspect is materials. The lead for implementation of personnel and equipment lies with the Soldier and Biological Chemical Command (SBCCOM) and the implementation of the material aspect currently lies with the Survivability and Lethality Directorate of the Army Research Laboratory. Shown here is the break out of NBC architecture between the two commands.*



The AAV will replace the current AAV-7A1 and is due to enter service in 2006. The current plan calls for the Marine Corps to buy 1,013 AAVs.

Fabrication of the first prototype hull was accomplished at the Oakridge National Laboratory and machining of the hull is being done in Lima, OH. This first prototype hull is scheduled to be delivered to General Dynamics Amphibious Systems and the U.S. Marine Corps in Woodbridge, VA, at the end of this calendar year, with completion of the full-up prototype vehicle scheduled for August 1999.

The Edgewood CB Center has been involved with the U.S. Marine Corps for nearly 20 years beginning with the assessment of the NBC vulnerability of the current fleet of Marine Corps' Amphibious Assault Vehicles (AAV). This involvement has included consultations, studies, and leakage testing of the AAV-7A1.

In the fall of 1993, the Armored Systems Modernization (ASM) Team began consultations with the AAV program office regarding NBC Survivability. These consultations led the Marine Corps to request that the ASM Team assist in the writing of the NBC and smoke survivability portions of the System/Segment Specification, and the Demonstration/Validation contract Statement of Work. Essentially, the ASM Team was asked to serve as the AAV Program Manager's technical experts in the NBC protection and smoke areas. Included in the specification for the AAV were requirements for NBC detection, collective protection, decontamination equipment, individual equipment, and smoke systems for the vehicle and embarked crew. From the beginning, the Marines were adamant that the AAV would be equipped with a complete NBC survivability suite. Because of this early involvement, as well as recognition of the need to be prepared for operations on the NBC battlefield during the operational life (2006-2036) of the AAV, NBC became one of the major thrusts of the AAV program.

The ASM Team also provided support during the Source Selection and Evaluation process where responses to the Demonstration/Validation

Request for Proposals were evaluated. The Demonstration/Validation contract was awarded in June 1996 to General Dynamics Amphibious Systems, Woodbridge, VA. The AAV program is one of the first major Department of Defense development programs where the prime contractor and program manager personnel are collocated under one roof. This collocation concept has dramatically reduced the amount of time it takes Government and industry to resolve design issues. The program is classified as an Acquisition Category I D program and is the Marine Corps' number one priority ground system program.

The ASM Team's involvement with AAV has continued with its participation as an active member of the AAV's Auxiliary Systems Integrated Product Team (IPT). This IPT is responsible for the implementation of the design of the NBC filtration system, detection and warning, decontamination, individual equipment, environmental control system (heating and cooling), automatic fire extinguisher system, bilge pump system, and the collateral equipment storage. The Auxiliary Systems IPT was recently awarded a Value Engineering Achievement Award from the Principal Deputy Under Secretary of Defense for Acquisition and Technology for redesign of the NBC filtration system, which resulted in a significant system cost avoidance and weight savings. The IPT meetings occur each Thursday afternoon via conference call between General Dynamics Amphibious Systems and the U.S. Marine Corps at their Woodbridge facility and the associated AAV subcontractors and Government laboratories. All General Dynamics Amphibious Systems and Government IPT members (including the ASM Team) have access to the AAV Virtual Design Database at their desktop computers, which allows the IPT members access to virtually all program documents.

The ASM Team, in order to gain an appreciation for the environment in which the embarked Marines are currently required to operate, participated in a trip to Camp Pendleton, CA, in February 1997. There the team members took an active part in a Marine amphibious exercise

aboard the current Marine Corps AAV. The pictures below show the group of AAV's that were used during the exercise.



The General Dynamics Amphibious System uses the NBC filter designed for the Advanced Integrated Collective Protection System (AICPS) to provide filtered air for the system. The AICPS' filter uses a "deep bed" design concept to provide a flow rate of 200 CFM of air to wheeled vehicle applications. Designers of the AAV collective protection system at General Dynamics Amphibious Systems calculated that the 18 embarked Marines and crew of three would require 300 CFM of air to provide the required quantity of filtered air.

Originally, two AICPS filters were proposed. However, as the result of vehicle weight constraints, a trade study to investigate filter quantity reduction was conducted. As a result of

this study, a decision was made to reduce the number of filters from two to one resulting in the above-mentioned Value Engineering Award. This has resulted in a need to re-rate the filter product flow of the AICPS filter from 200 CFM to 300 CFM, which has mandated the filter to be "requalified" to accommodate this higher flow-rate. Another requirement, which needed to be addressed when using the AICPS filter for the AAV application, is the need to qualify the filter for use in a tracked vehicle environment.

The ASM Team suggested that a limited test series be performed to identify any major problems in re-rating the filter flow and use in the more severe tracked vehicle vibration environment. The ASM Team in cooperation with the CB Filtration Team, the Quality Evaluation Team, the Field Environmental Test Team of the Non-Surety Test Group and the AICPS Team has executed the required testing. Initial testing was performed on a small sample size to give system designers an indication that the filter is capable of providing the required NBC protection at the higher flow rate and under the vibration conditions outside the filter's original design conditions.

Formal requalification filter testing at these new conditions is anticipated to occur in the Engineering and Manufacturing Development phase of AAV development. All tasks were performed under a Testing Support Agreement executed by the Edgewood CB Center's Advanced Systems Concept Directorate.

In summary, the AAV exemplifies the state-of-the-art NBC protection for future land combat systems. It's been a long time coming, but the U.S. Marine Corps is setting the standard for future U.S. combat vehicle systems for integration of a state-of-the-art NBC suite.

POC: Mr. Robert L. Coen, Armored Systems Modernization Team, Commercial (410) 436-8213, DSN 584-8213, or email rlcoen@apea.army.mil



PM NBC DEFENSE "WALKS THE TALK" IN ACQUISITION REFORM

The Project Manager (PM) for Nuclear, Biological and Chemical (NBC) Defense Systems invited industry to review and comment on the Draft Request for Proposals for the Joint Service General Purpose Mask (JSGPM) program. Weapon and technology transfer has contributed to the potential use of chemical and biological weapons in the Third World countries. The spread of these weapons, coupled with the potential for U.S. forces to become involved in these areas, in either an operational or support capacity, raises the need for an improved mask system.

The JSGPM is a lightweight mask system (consisting of the mask, carrier, and accessories). It is being developed to replace the M40/M42 series mask for the U.S. Army and U.S. Marine ground and combat vehicle operations and the MCU-2/P for the U.S. Air Force and U.S. Navy ground/shore-based and shipboard applications. This acquisition includes a two-year Program Definition Risk Reduction phase with options for a three-year Engineering and Manufacturing Development and ten-year Production with concurrent Contractor Logistics Support. Source selection will be conducted using tradeoff process to obtain the Best Value approach. The successful offeror must be able to satisfy the requirements of the performance specification and incorporate acquisition reform initiatives such as Cost as an Independent Variable and Total Ownership Cost throughout the life cycle of the program.

The PM NBC Defense and the AMC Acquisition Center hosted a two-day Pre-Solicitation Conference "Industry Day" on November 17 and 18, 1998, at the Edgewood Area of Aberdeen Proving Ground, Maryland. More than 90 representatives from over 30 domestic and foreign

protective mask manufacturers and support vendors were in attendance. During the open and one-on-one sessions, Industry provided the Government with an analysis of the requirements set forth in the draft Request for Proposals. Industry also identified several areas in the performance specification that could be challenging to meet and identified potential technology improvements over existing military masks. Industry provided comments and rationale on the Government's contracting approach; the risk and their ability to realistically forecast pricing for all options; peacetime and wartime Contractor

Logistics Support concept.



Industry also provided some alternatives to managing the risk associated with our contracting approach.



The TRADOC System Manager-Soldier, Project Manager-Soldier, Joint Service Integrated Group, and the Chemical School assisted the PM NBC Defense Systems in

presenting to industry a brief overview of the Joint Service General Purpose Mask program that included program objectives, milestones/schedules, procurement approach, and user's objective and concerns. The user's vision of an "Integrated Soldier System" in "Full Spectrum Conflict" provided our potential contractors with the right perspective. PM-Soldier and PM NBC Defense Systems provided our vision on an "Integrated Soldier Systems Integration" to establish common developmental standards. The JSGPM program will integrate all concurrent Project Manager interface developmental items to streamline this program acquisition and leverage success. SBCCOM's Data Imaging Team prepared a static display of the current individual protective equipment, and SFC Aurelio Burton, Sr., PM NBC Defense Systems was on-hand to answer questions.

Fieldings

 <p><i>M56 Smoke Generator</i></p>	<p>21st Chemical Co, Ft Bragg, NC 101st Chemical Co, Ft Bragg, NC</p> <p>POC: Randal H. Loiland AMSSB-PM-RSM-M, DSN 584-2806</p>	<p>Sep-Oct 98 Nov 98</p>
 <p><i>M58 Smoke Generator</i></p>	<p>92nd Chemical Co, Ft Stewart, GA</p> <p>POC: Peter F. Annunziato AMSSB-PM-RSM-L, DSN 584-2362</p>	<p>Sep-Oct 98</p>
 <p><i>M157A2 Motorized Maintenance Work Order (MWO) Retrofit Kit</i></p>	<p>USAREUR 8530th Cml Co, Hohenfels, Germany</p> <p>POC: Janice A. Nordin AMSSB-PM-RSM-R, DSN 584-2838</p>	<p>Aug 98</p>
 <p><i>M157A2 Mechanized Maintenance Work Order (MWO) Retrofit Kit</i></p>	<p>USAREUR 69th Chemical Co, Bidingen, Germany U.S. Army War Reserve, Goose Creek, SC</p> <p>POC: Janice A. Nordin AMSSB-PM-RSM-R, DSN 584-2838</p>	<p>Aug 98 Aug 98</p>
 <p><i>New M157A2 Smoke Generator/M284A1 Mounting Kit on M1037 HMMWV</i></p>	<p>378th Cml Co., Ft McCoy, WI 379th Cml Co., Ft McCoy, WI 388th Cml Co., Ft McCoy, WI</p> <p>POC: Janice A. Nordin AMSSB-PM-RSM-R, DSN: 584-2838</p>	<p>Sep 98 Sep 98 Sep 98</p>

 <p><i>Biological Integrated Detection System P3I</i></p>	<p>7th Chemical Co, Ft Polk, LA</p> <p>POC: Bruce W. Jezek AMSSB-RBD, DSN: 584-3351</p>	<p>Dec 98</p>
 <p><i>M93A1 FOX</i></p>	<p>Chemical School, Ft McClellan, AL</p> <p>POC: CPT John M. O'Regan AMSSB-PM-RNN-T, DSN 584-6551</p>	<p>Sep-Oct 98</p>
 <p><i>M40A1/M42A2 Mask</i></p>	<p>77th RSC (NY and NJ) Arkansas National Guard Indiana National Guard Nevada National Guard Idaho National Guard 81st RSC (GA, NC and KY) 94th RSC (MA) South Dakota National Guard North Dakota National Guard USAREUR (M42A2 upgrade)</p> <p>POC: CPT John M. O'Regan AMSSB-PM-RNN-M, DSN 584-6551</p>	<p>Jul - Sep 98 Aug 98 Sep 98 Oct 98 Nov 98 Nov 98 - Jan 99 Dec 98 Dec 98 Dec 98 Aug 98 - Jan 99</p>
 <p><i>M22 Automatic Chemical Agent Alarm</i></p>	<p>Ft McClellan, AL Ft Gordon and Ft Benning, GA Ft Knox, KY Ft Sill, OK Ft Leonard Wood, MO Ft Jackson, SC Ft Bliss, TX Ft Rucker, AL Ft. Huachuca, AZ Ft Eustis, VA APG, MD Ft Lee, VA Redstone Arsenal, AL</p> <p>POC: Cpt John M. O'Regan AMSSB-PM-RNN-A, DSN 584-6551</p>	<p>Jul 98 Aug 98 Aug 98 Aug 98 Aug 98 Aug 98 Aug 98 Aug 98 Aug 98 Oct 98 Oct 98 Oct 98</p>

END ITEM UPDATES

NOMENCLATURE/TYPE DESIGNATOR: The following nomenclature and type designators were approved and assigned

MAINTENANCE KIT, CBR EQUIPMENT: test paddle, XM312

DISPERSER, RIOT CONTROL AGENT, MANUALLY CARRIED: mid-size. XM37

GRENADE, LAUNCHER: non-lethal, distraction, XM98

GRENADE, LAUNCHER: non-lethal, blunt-trauma, XM99

VALUE ENGINEERING CHANGE PROPOSALS (VECP):

M825A1 Burster – A VECP was written to permit the use of an alternate, less expensive, stainless material in the construction of the M825A1 Burster. After the new material passed ballistic testing at Dugway Proving Ground in April 1998, the VECP was evaluated and approved in May. This VECP is expected to save the government over 1.8 million dollars. The savings consist of \$1.05 million in the current M825A1 Burster contract, and an estimated \$77 million in future savings through FY00. Since the VECP was initiated by ARDEC and coordinated by SBCCOM, the savings are expected to be two-thirds credited to the ARDEC VE Goal and one-third credited to the SBCCOM VE Goal.

M28 Collective Protection Equipment – The first of three ECPs for the release of the “Type II” M28 CPE for the Air Force was approved in October. This ECP released the Type II vestibule liners and ISO adapters. The other two ECPs for the release of the Type II liner sections and the CPE supply airlock will be forthcoming. These ECPs will be incorporated into the FY99 M28 CPE procurement (primarily for Air Force quantities).

M56 Coyote – A waiver for a Fuel Tank Repair was signed in September as a no cost action. This waiver approves RST’s repair procedure for the leaking level sensor insert in the base of the fuel tank. This waiver applies only to tanks already manufactured for the M56 systems. An ECP will be submitted to change the fuel tank rotational mold for future tanks.

M312 Maintenance Kit, CBR Equipment: Test Paddle – The technical documentation for the new M312 Maintenance Kit was completed, and an ECP releasing the tech data was approved by the M8A1 Configuration Control Board. The new kit contains five test paddles for the M43A1 Chemical Agent Detector and five resealable plastic bags for storing the paddles once opened. The M312, together with the M293 Maintenance Kit, will replace the existing M273 Maintenance Kit once current stock is depleted.

EQUIPMENT UPDATES:

Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD) – A Joint Service Product Support IPT voted on which service should be the primary inventory control agency (PICA). The joint services decided by majority that the Navy would be the PICA. This decision was based on cost, system density, and PICA capability.

Joint Services Lightweight NBC Reconnaissance System (JLNBCRS) – In September, a development contract was awarded for the JLNBCRS to TRW, Inc.

Joint Service General Purpose Mask –



- Ms. Sandy Fointain, key USN IPR voting member, informed us that the Navy has upgraded their participation in the JSGPM from “Monitoring the Program” to “Joint Development.”

- Intellitec, Deland, FL took action to implement a Cost as an Independent Variable under contract DAAM01-97-C-0030. Cost as an Independent Variable, which is a relatively new acquisition reform initiative, is being implemented as a method of managing costs under the contract.

M3 Heater – Blue Grass Army Depot recently completed a disassembly of the M13A1 Gas Particulate Filter. This returned 1,599 M3 Heaters into the supply system and makes \$312,236.73 worth of available assets. The heater was in a buy position for a quantity of 1,325 this fiscal year. Now no buy is necessary. This item is a component of our NBC system installed on MLRS, M1A1 tank, etc. The QA Cell recommended the change of Condition Code (CC) from J to A for 1,599 M3 Heaters at Blue Grass Army Depot. These M3 Heaters came from the disassembly of M13 Gas Particulate Filter Units (GPFU). Normally these would be tested to the SB before changing the CC. In this case, the M3 Heaters were in the original manufacturing boxes. The M13 GPFU were manufactured in 1985. The M3 Heaters are in demand.

Collective Protection Equipment – Teaming with TACOM-ACALA, a 5-year, firm fixed-price requirements contract was awarded to Hunter Manufacturing Co. This contract is for five items: M13 Particulate Filter, Frame Assembly, M8A3 Gas Particulate Filter Unit, M2A2 Air Purifier, and M12A2 Gas Filter, in support of Collective Protection Equipment. The procurement was a set-aside for Small Business.

M28 Collective Protection Equipment –

- The Air Force conducted their Chemically Hardened Air-Transportable Hospital (CHATH) Initial Operational Capability (IOC) in September. Feedback from the Air Force on the performance of the new liner design and the M28 CPE in general was very positive. The IOC also represented the initial fielding of the CPE Supply Airlock. This airlock is designed for bringing in large pieces of equipment and palletized supplies into the protective area. Based on the results of the CHATH IOC, the Air Force quantities with the new liner design will continue to be produced against the statement of work incorporated into the contract in early June. The TDP revisions will be incorporated into the solicitation package for the FY99 Air Force buy of M28 CPE and CPE supply airlock components.

- Our Respiratory and Collective Protection Team fabricated the first prototype of the Bump-Through Door Airlock being developed in a one-year program for the U.S. Air Force Human Systems Center. This airlock is to replace both the tunnel airlock for litter patients and the upright airlock of the M28 Collective Protection Equipment, which are currently components of the CHATH. The new airlock, which is large enough for two litter patients or several ambulatory personnel.

- On 12 Nov 98, the Navy inquired about the M28 CPE for use by their Sea Bees customer for NBC protection. The Sea Bees know the Marines are currently using the Personnel Chemical Protection System (PCPS). The Sea Bees are interested in the M28 CPE configuration (M28 CPE or PCPS) that will work the best for them. SBCCOM (RI), Edgewood, and Natick have been working collectively to get the information to the Navy.

Advanced Integrated Collective Protection System (AICPS) – Members of the AICPS Team participated in the U.S. Marine Corps’ Joint Enhanced Core Communication System (JECCS) Preliminary Design Review in September. The AICPS was briefed as part of the JECCS power subsystem design. The USMC and their contractor considered AICPS capabilities, design, and configuration suitable for integration with the JECCS.



The current plan is to make the AICPS available to support the JECCS user and interoperability test, which is scheduled to start 3QFY99 and will be part of the JECCS Phase I Engineering Design Model.

M295 Training Kit – At the Edgewood CB Center in November, three soldiers from the U.S. Army Chemical School performed operational testing to verify if the M295 Training Kit with the new inert filler had functional performance equivalent to the actual M295 Equipment Decontamination Kit. The M295 Training Kits were tested on individual equipment such as gloves, mask and hood, protective boots, and load carrying case. The soldiers' overall evaluations were that the M295 Training Kit had functional performance similar to the actual M295 kit with no visual difference, and that it would be a great training aid when fielded.

M17A3 Decon Apparatus –

- The Decon/Munitions Team was privileged to support the deployment of a Special Forces unit from Fort Bragg with the quick supply of two M17 Decon spray wands. The supply system is temporarily out of wands due to a contractor problem. While the whole team is diligently working the problem, this situation was making it impossible for the unit to deploy fully mission capable. The two wands were taken from our test M17 located in the ACALA MOP shop and shipped FedEx to the Special Forces unit overnight.

- Our Decon/Munitions Team has been supporting the Army and Marines with spare parts for their M17 Decons. The requirements for support of non-stocked parts has been increasing as the M17s in the field begin to reach and surpass their 10-year design life. These parts are not available through the supply system under a National Stock Number, due to the low failure rate, but must be ordered by part number and FSCM code from the manufacturer. The FSCM brings them back to this command. We are fortunate to have an ongoing M17 production contract with the Rock Island Arsenal. This has been critical in providing us a source of supply for these low density parts. The Arsenal has been very responsive and cooperative in offering their services and expertise in assisting us in supporting the field users.

Sorbent Decontamination Systems (SDS) –

- The SDS Team tested pad materials for the M295 Individual Equipment Decontamination Kit. As a result of the testing, new sources of pad material that are compatible with the sorbents will be qualified for the M295.

- Our contractor for Phase III of the sorbent program, Guild Associates, Inc., is currently evaluating different types of commercially available applicators for the sorbent. Several applicators look promising and are capable of applying the sorbent with little or no modification.

- We are investigating the feasibility of packaging DS2 and DS2P in 15-gallon stainless steel containers instead of 5-gallon carbon steel containers. The 15-gallon containers are the same design as the previously tested 5-gallon stainless steel containers. They can be filled under a nitrogen blanket so that the DS2 and DS2P solutions are not compromised. Packaging DS2 and DS2P in 15-gallon containers would greatly reduce the surveillance testing cost; reduce the stockpile by 2/3; and reduce the current inspection frequency from 100% every year to every 5 years. The 15-gallon containers can also be easily managed by the warfighter. Both stainless steel containers are produced by Spartanburg Steel Products, Inc., in Spartanburg, South Carolina.

Chemical Agent Monitor (CAM) – Teaming with TACOM-ACALA, we awarded a 5-year, firm-fixed price requirements contract to American Technology Corporation (ATC), a small disadvantaged business. ATC will

provide three items to support the CAM. This contract has the potential to be worth \$1.1M over the 5-year period.

Module, Drift Tube/Chemical Agent Monitor (CAM) – Teaming with TACOM-ACALA, a contract for 500 Drift Tube Modules, with a 100% option, was awarded to Environmental Technologies Group, Inc., a Small Business. Drift Tube Module is the radioactive Nickel 63 source of the CAM. This item is urgently needed, and the procurement was competitive/unrestricted. Total award amount is \$650,500. Savings of \$33,000 was realized by authorizing the contractor to purchase all material in support of production prior to approval of the First Article Test Report, which is due in February 1999.

M8A1 Chemical Agent Alarm –

- Teaming with TACOM-ACALA, we recently awarded a 5-year, firm fixed-price requirements contract to Technical Products Group, Intellitec Division, for the Cap Plug, Protective, in support of the M8A1 Chemical Agent Alarm. The maximum value of this contract is \$529,000.

- An SBCCOM Depot Maintenance Work Requirement (DMWR) No. 3-6665-312 was completed in October. This was a result of a very successful DMWR Verification and Pilot Overhaul at Anniston Army Depot (ANAD), in which representatives from the SBCCOM (RI) Monitors, Alarms and Detectors Team participated. This is the first SBCCOM DMWR to be written to the new performance specification, MIL-STD-40051. Copies are being prepared for distribution to ANAD and SBCCOM sites at Natick, Edgewood, and Rock Island.

- A Commerce Business Daily announcement was released to survey the market for a commercially available CAM training simulator. The announcement included the essential characteristics that must comply with the users' requirements for a training device for the CAM. Replies were due by November 1st; specific procurement options will be assessed depending on the quantity of replies received.

M21 Chemical Agent Automatic Alarm (CAAA) – A small percentage of M21s exhibited a false alarm malfunction. In all cases, the malfunction was corrected by purging and charging the alarm with nitrogen gas; therefore, the M21 Team approved a modification to the TMs to incorporate this repair procedure. This information will also be published in the SBCCOM (RI) Chemical Newsletter. The M21 CAAA Team will continue to monitor this situation and will initiate an engineering study if the occurrence of the false alarm malfunction increases significantly.

M43A1 Chemical Agent Detector – The Edgewood CB Center successfully completed a project to assess the feasibility of upgrading the M43A1 Detector using IMS and SAW technologies. The objective was to achieve a low cost upgrade option which added Mustard agent detection and improved the M43A1 sensitivity, response time, and capacity to reject interferences. Prototype detectors were subjected to a 4 week battery of live agent and interferent testing. The units generally demonstrated high detection rates with good agent sensitivity and interferent rejection. With some further software and hardware development a successful upgrade of the M43A1 could be implemented. The upgrade unit costs vary between \$2.6K and \$5K per system depending on the quantities procured.

Automatic Chemical Agent Alarm (ACADA) – Teaming with TACOM-ACALA, a 5-year, time and material, requirements type contract was awarded to Graseby Dynamics Ltd. The contract will be used by the Army, Marines, Air Force, and Navy for the maintenance and repair of their ACADA assets which are not otherwise covered under the product warranty. ALPHA contracting techniques were used to negotiate this contract. The Integrated Product Team members from TACOM-ACALA, SBCCOM, and Graseby participated in the

process. The ALPHA contracting approach enabled the PM to have a maintenance contract in place prior to the initial fielding of the ACADA.

M27 Service Kit – In September, the First Article Testing (FAT) of the Kit was approved, which consisted of high pressure testing of fittings, test gages, and hose assemblies. After official notification of the approval, we expect 69 kits to be delivered within 90 days. The M27 Service Kit is used to service the M3 and M5 Riot Control Agent Dispersers.

M34 Sampling Kit – Military Performance Specification, MIL-PRF-51200C (EA), has been certified. The specification was reviewed in accordance with the provisions of MIL-STD-961D and will be used for the adoption process.

M40A1/M42A2 Mask Carriers – Our Individual Protection Team completed a market research looking for commercial carrier equivalents. Numerous companies were researched using the Thomas Register, I-Mart, and International Handling Service databases, but no commercial equivalent carriers were found. The design and wear positions of the M40A1/M42A2 mask carriers make them unique to all other carriers available in the market place. The mask carrier may be worn in three wear positions: shoulder, leg, or pistol. In addition, it's internal/external compartments were specifically designed to accommodate unique components of the soldier's mask.

M45 Masks – Teaming with TACOM-ACALA, the First Article for the M45 CB Mask was approved in August for the Extra-Small, Small, Medium, and Large sizes. The Contract for the M45 CB Mask is with Campbell Plastics Engineering & Manufacturing, Inc., an 8(a) firm.

M48 and M49 Masks – The Mask Core Team partnered with the contractor to conduct a failure analysis on the leaking Lightweight Motor Blowers. Approximately 2% of the blowers had small cracks in the housing, classified as latent defects, which our extensive qualification tests failed to predict. The Mask Team initiated a program to retrofit all the Lightweight Motor Blowers currently in the Army's inventory. The contractor is manufacturing improved upper and lower housings from a stronger thermoplastic and has improved upon the threaded insert design. All the blowers remaining on the production contract shall be delivered with the improvements in place.

M8, TA, Floating Smoke Pot – TECOM-OPTEC recommended a Conditional Materiel Release for the Smoke Pot, which permitted Pine Bluff Arsenal to enter into production for the full quantity of smoke pots needed to fill the FY99 training requirements. Currently, Pine Bluff Arsenal is producing 3,000 M8 Smoke Pots and is conducting engineering tests to increase the total burn time of the production pots in an effort to meet the original ORD requirements. It is expected that a full release will be granted based upon the data generated during this limited production phase.

Short Range-Biological Standoff Detection System (SR-BSDS) – The Program Director for Bio Detection successfully demonstrated the SR-BSDS at Dugway Proving Ground in August. This first-of-its-kind system uses ultraviolet laser energy to discriminate biological from non-biological aerosols and will provide early warning of bio attack while minimizing false alarms. Various biological warfare aerosol simulants were disseminated along with battlefield interferences in different concentrations and ranges up to 3.2km to determine sensitivity and discrimination capability. The SR-BSDS is a component of the Joint Biological Remote Early Warning System (JBREWS), Advanced Concept Technology Demonstration (ACTD).

Commercial Protective Clothing – In July, the AMC Acquisition Center awarded a contract for commercial-off-the-shelf, fully encapsulated suits for SBCCOM chemical workers. The sole source contract

is for the Trelchem High Performance Suit, which was previously approved by DA Safety for use at SBCCOM in specific scenarios. The estimated cost of the suit is \$4,500. A 3-year requirements contract was awarded. No minimum order is required for the duration of the contract. The contract is available to all interested government activities.

Chemical Protective Undergarments (CPUs) – The Stockpile Operations Group funded the Natick Soldier Center to create a pattern for nonstandard EX EX Large CPUs. Natick created the pattern and sent it to the Defense Supply Center, Philadelphia (DSCP) in July. That effort completed the first phase in DSCP's process to perform a limited exigency buy to procure 342 sets of EX EX Large CPUs at a total cost of \$77,634 for our SBCCOM workers.

SBCCOM Facilities at Edgewood

AMC Treaty Laboratory –

- The AMC Treaty Laboratory received both a state permit and a federal permit from the Drug Enforcement Agency to handle controlled narcotic substances. This permits us to synthesize and use several nonlethal compounds, which will support the pilot plant screening effort. This is quite a feather in our cap as well as SBCCOM's and AMC's.

- In September, the AMC Treaty Laboratory scored its fourth consecutive top score, an "A," in the Fourth Official OPCW Laboratory Proficiency Test. Three other laboratories that participated also scored "A" in the tests. China and Sweden both had scored "A" grades on the three previous official proficiency tests, but did not participate in this test. As a result, the AMC Treaty Laboratory is the only laboratory in the world that has 4 "A" grades from participation in the tests. Approximately 30 of the world's top analytical labs have participated in the four tests, which have been conducted over the last three years.

Chemical Evaluation Laboratory – In October, the Chemical Evaluation Laboratory successfully underwent the biannual assessment for renewal of accreditation with respect to ISO Guide 25 in fulfillment of American Association for Laboratory Accreditation requirements. In effect, this demonstration of technical competency will assist the Chemical Evaluation Laboratory in increasing and maintaining its customer base.



WEB SITE ON LINE

Please visit SBCCOM's RDA Enterprise site on the world wide web. This is a new site. Our url address is:

http://www.apgea.army.mil/rda_new

THERMAL TREATMENT FACILITY CLOSES

An eerie quiet overcame the Beach Point Road area after the last burn was completed on May 14th, 1998, at the Thermal Treatment Facility in the Edgewood Area of Aberdeen Proving Ground, MD. This was to become the last operational day in the history of the Facility. It was originally licensed for the thermal treatment of specific decontaminated agent-related wastes generated by research activities at what was then known as the Chemical Systems Laboratory. The Facility is currently being dismantled in accordance with the Closure Plan approved by the Maryland Department of the Environment in June 1998.

The Facility, constructed in the early 1980s and licensed by the state in September 1985, was the first of its kind within the Army and the only licensed thermal treatment facility on an Army installation for the treatment of such wastes. From March 1983 until May 1998, it thermally treated spent decon solutions and solids that may have been exposed to agent and decontaminated and/or monitored. The Thermal Treatment Facility treated 6,762,257 pounds of waste and completed 2,220 operational days during its successful run. All scrap metal was taken to Aberdeen Proving Ground for processing at the Salvage Yard.

The original team consisted of: Mr. Mark Fisher (Edgewood Chemical Activity); Mr. Lou Schadie (Experimental Fabrication Team, Engineering Directorate); Mr. Dean Smith (retired January 1998); and Mr. George Smith (Chemical Support Division, Operations Directorate). The Facility operated with a four man core team and cross-trained individuals from within the

Chemical Support Division. When the Thermal Treatment Facility opened, it thermally treated waste every other day; as time progressed it was necessary to run two overlapping shifts each day to ensure a longer burn time. When the facility closed its doors in May, Mr. Fred Cholette, Mr. John Ford, Mr. Bob Russell, and Mr. Nick Visnich were the core team. These individuals will continue to work within other areas of the Chemical Support Division.

Mr. Fisher went to work at the Detoxification/Decontamination Facility, as it was known then, in 1982 when he left the Chemical Agent Storage Yard and with the closing of the Change House at Building E2342. He was originally assigned to shadow the engineer from C&H Combustion as they were bringing the new system on line. He remembers one of the first test burns, "We were burning a clean charcoal filter and expected everything to burn up during the process. However, when we pulled the hopper out of the chamber, the car was full of debris. We had to wait two days for it to cool down before we



could remove it. Melted to the bottom of the pan was the aluminum netting used inside of the filter. It was all a learning experience.” He also remembers the cold despite the temperatures the Facility operated with and the unending noise.

During the past several years it has become necessary to find alternate means of disposal for certain agent-related waste that could not be treated in the Thermal Treatment Facility due to the restrictions in the operating permit. On-going changes in Army regulations governing management of chemical agents now allow the use of licensed commercial hazardous waste facilities for the treatment and disposal of agent-related waste. The Environmental Protection Agency recently announced plans for new air regulations governing hazardous waste combustion unit, which would require extensive renovations to this Facility to maintain compliance. The decision was made not to renew the operating permit for the Facility when it expired at midnight on May 14th.

Closure Plan coordination and remediation is being supervised by Mr. Dennis Hall, Chief, Chemical Services Branch, and Mr. Tim Blades, Chief, Chemical Support Division. Actual Facility closure is being done by Mr. Fred Cholette, Mr. John Ford, Mr. Bob Russell, and Mr. Nick Visnich. Mr. Randy Akers, Mr. Bill Fearington, Mr. Roger Halsey, Mr. Charles Hughey, Mr. Rusty Nesbit, and Mr. Billy Weeks of the Chemical Services Branch are providing rigging support. Mr. Tim Blades is operating the crane. Ms. Teresa

Dulak - Safety, Mr. Jerry Starnes - Environmental, and Mr. Ozzie Goodall - Industrial Hygiene, are coordinating actions with the Risk Management Team. The Thermal Transfer Facility is being dismantled in accordance with requirements for closing hazardous waste treatment facilities and the Closure Plan approved by the Maryland Department of the Environment. Under the terms of the Closure Plan, the thermal treatment unit, air pollution control devices, and associated tanks and piping are being cleaned and dismantled. These parts will either be sold for reuse, sold as scrap, or disposed of as waste. The associated buildings, which may have been contaminated with heavy metal as a result of operations, will be cleaned and retained for use by the Edgewood CB Center. The ground around two underground sumps associated with the Facility will be sampled to ensure that there is no contamination and the sumps will be filled with concrete. Spent decon solutions generated as a result of dismantling and cleaning the facility will be disposed of as hazardous waste.

All agent-related waste will now be deconned, monitored, and turned-in via the Hazardous Waste Tracking System and disposed of by Aberdeen Proving Ground’s hazardous waste contractor.

POCs: Mr. Dennis G. Hall, Operations Directorate, Commercial (410) 436-2393 or DSN 584-2393, or email dennis.hall@sbccom.apgea.army.mil, or Ms. Cindy Dietz, Operations Directorate, Commercial (410) 436-4427 or DSN 584-4427, or email cynthia.dietz@sbccom.apgea.army.mil.



SUPPORT TO FLEET BATTLE EXPERIMENT - DELTA

During the week of 26 October 1998, the Modeling and Simulation Team participated in the Fleet Battle Experiment - Delta. This high-visibility, distributed simulation, operational exercise occurred in the Korean Theater, but was supported from several distributed locations all over the world. The Modeling and Simulation Team provided Chemical and Biological Defense incidents throughout the exercise from the U.S. Army Soldier and Biological Chemical Command Simulation Center at APG, MD. This was the fourth in a series of Joint Service exercises sponsored by the Chief of Naval Operations in support of Joint Vision 2010 and related programs and is designed to examine applications of emerging simulation technologies and C4I systems to the development of joint operational concepts. Stationed in the Republic of South Korea, East Sea of Japan and proximate waters, and Continental U.S. locations, joint C4I planning elements and modeling and simulation expert-domain "reach-back" elements collaborated via wide-area secure, encrypted networks using the Common Operational Modeling, Planning, and Simulation Strategy interface.

The primary objective was to provide distributed collaborative planning and mission rehearsal capabilities for Joint Theater Air and Missile Defense and Precision Engagement operations. Operational sites stationed in-theater include: U.S.S. Kitty Hawk (tactical air support, East Sea of Japan), U.S.S. Belleau Wood (amphibious support, East Sea of Japan), U.S.S. Blue Ridge (Seventh Fleet Flag Ship, East Sea of Japan), 8th Army Jump Tactical Operations Center (Osan, Republic of South Korea), 7th Air Force Hardened Tactical Air Control Center (Osan, Republic of South Korea), Naval Special Warfare Task Group 1 (Chinhae, Republic of South Korea), and the Commander Naval Forces Korea (Walker Simulation Center, Yangsan, Republic of South Korea). Modeling and simulation sites via the Common Operational Modeling, Planning, and Simulation Strategy included: Soldier and Biological Chemical Command (Edgewood CB Center, Aberdeen Proving Ground, MD) supporting Nuclear, Biological, and Chemical hazard assessment from weapons of mass destruction by means of the Nuclear, Chemical, Biological, and Radiological Planner; Defense Special Weapons Agency (Arlington, VA) supporting NBC hazard assessment with Hazard Prediction and Assessment Capability model; and Space and Missile Defense Battle Lab (Huntsville, AL), a Federated Battle Lab providing simulations for missile defense, precision engagement tactics, and amphibious assault. The Space and Naval Warfare Systems Center (San Diego, CA) provided the Common Operational Modeling Planning, and Simulation Strategy Modeling and Operational Support Cell to facilitate wide-area distributed, secure, networked communication and collaboration.

The Modeling and Simulation Team specifically supported the 7th Fleet Operations and the Theater Missile Defense Group, providing NBC hazard predictions resulting from SCUD missile attacks with the contamination footprints rapidly displayed on the various Joint Service battle maps. A start-of-work meeting was held on 17-18 June in Omaha, NE for a weapons of mass destruction vulnerability assessment of the Strategic Command Headquarters. Edgewood CB Center has teamed with the Army Corps of Engineers Protective Design Center to conduct the assessment, which is required of commanders every three years under new DoD standards. The assessment will focus primarily on building protection against chemical/biological agents but will also examine other areas of CB defense. A report will be provided to the commander of STRATCOM in August.

POC:Dr. John R. White, Commercial (410) 436-1755, DSN 584-1755, or email jrwhite@apgea.army.mil

BRIEFS

DoD PREPARING FOR AND COMBATING TERRORISM

DOMESTIC PREPAREDNESS:

- In February our Domestic Preparedness personnel trained first responders in Indianapolis. Indianapolis leader, Peter Beering, stated that the training enabled responders to effectively deal with a recent anthrax hoax. They decontaminated, transported, quarantined, and medically treated 31 victims before lab results proved the incident a hoax. This is the first city to respond to a real Weapons of Mass Destruction threat after receiving DP training, and Mr. Beering feels these experiences should be shared to show training effectiveness.

- A compendium of the training courses used by the Domestic Preparedness Team was compiled to inform state and local agencies of federal training that is available in the area of Weapons of Mass Destruction. These courses are all available to state and local responders and will be updated as new courses become available. The document and its update are available on the Domestic Preparedness Web page at <http://www.cbdcom.apgea.army.mil/Missions/dp> or may be requested via the DP Helpline (1-800-368-6498).

DoD COMBATING TERRORISM/FORCE PROTECTION: In September a Force Protection Focus Group of 10 DoD Hospital Providers assessed the applicability of the Domestic Preparedness (DP) Hospital Provider Course to DoD installation preparedness, involving a potential terrorist incident using Weapons of Mass Destruction. This was a follow on to a Focus Group conducted in July, where DP courses in Awareness, Operations, Emergency Med Services, HAZMAT Incident Command, and Senior Officials were assessed by 25 DoD Emergency Responders. These 35 responders represented 30 installations from all four Military Services. Output of these focus groups will be used to develop an interactive (CD-ROM) training tool for use by DoD installation responders.

PROGRAM SAFEGUARD: This Chemical-Biological Defense effort provides a low-altitude airborne vapor detection capability for certain Weapons of Mass Destruction production and storage facilities. In 1998, an evaluation of a nitrogen industrial facility using both airborne and ground-based infrared sensors was completed. This evaluation was made in collaboration with the U.S. Environmental Protection Agency, Region VII. The facility site monitoring of three targeted industrial stacks included measurements on an EPA-certified portable calibration stack. Continuous emission monitoring concentrations from the stacks allowed quantitative verification of all infrared sensor measurements.

DoD UNIVERSITY RESEARCH INITIATIVES (MURI) (Managed by the Army Research Office)

First Model For Chemical Weapon Incineration Developed – Profs. T. Cool, E. Fisher, and P. Houston of Cornell University studied the combustion of nerve agent simulants. By measuring thermal decomposition in molecular beams, pyrolysis, and flames, the investigators developed the first model for combustion of this family of molecules. Previous to this work, which involved collaboration with combustion experts from National Institute of Standards and Technology, Sandia, and Novosibirsk, no such model existed. The project has resulted in peer reviewed papers and presentations at major meetings and three PhDs awarded. Over the five-year program, more than a dozen graduate and a dozen undergraduate students participated. Research was regularly reviewed and advised by Army scientists from

the Army Research Office, the Army Research Laboratory, the Edgewood CB Center, Army Demil Activity, and Corps of Engineers. This research supports the use of incinerators for destruction of military toxic materials.

Laser Tomography For Incinerators Developed – Profs. F. Gouldin and G. Wolga of Cornell University developed a new system to measure temperatures and identify combustion products across an incinerator stack. Temperatures and products are measured using a new laser design tuned so that combustion products can be detected. The laser absorption data is analyzed using a new mathematical treatment comparable to tomographic systems used for medical imaging, but requiring a new approach tailored for the incinerator environment. This system, the first of its kind, has the potential to provide real-time operational information from a rugged, reliable instrument. This project was regularly reviewed and advised by Army scientists from the Army Research Office, the Army Research Laboratory, the Edgewood CB Center, Army Demil Activity, and Corps of Engineers. This research supports the use of incinerators for destruction of military toxic materials.

Five Year Program to Destroy Military Toxic Wastes Finished – Profs. T. Brill and M. Klein of the University of Delaware have studied decomposition reactions of explosives in high temperature water. Their work pioneered new experimental methods to determine rates and mechanisms of destruction reactions of toxic military materials. The project resulted in nearly 30 peer reviewed papers and presentations at major meetings and seven PhDs awarded, one to an Army Reservist. This research supports the Supercritical Water Oxidation technology selected by the Army to destroy VX nerve gas at Newport, IN, and smokes and dyes at Pine Bluff, AR.

NATICK SUPPORTS SPECIAL FORCES GROUP: In November, the Natick Soldier Center shipped two General Purpose (GP) Solar Covers to the 3rd Special Forces Group (SFG) for use in Ghana and the Ivory Coast. The GP Solar Covers will be used to protect soldiers from the harsh solar loading found in many tropical and desert environments and will be included in their standard deployment package. The ACRI is a State Department program led by the 3rd SFG to train eight African countries on peace keeping. The Natick Soldier Center has worked with the State Department on solar cover support since early September at the request of the 3rd SFG. The SFG was exposed to solar cover technology under the former Natick RDE Center's "Partnering with Field Units" program.

ISRAELI MASKS FOR KOREA: Commander-in-Chief, US Forces-Korea plans to provide CB protection for DoD-sponsored NEO personnel. PM NBC Defense Systems was requested to assist by identifying appropriate CB protective masks for children, infants, and hard-to-fit adults who could not wear the M17 mask. A market survey and analysis identified the Israeli civilian protection blown air masks specifically designed for these applications as the best approach. Using end of year Commander-in-Chief Initiative funding, PM NBC rapidly negotiated and awarded a contract (25 Sep 98) for 3,374 masks to support the Commander-in-Chief's requirement. Procurement did an excellent job of expediting this end of year procurement.

AMC ACQUISITION CENTER (AMCAC). In October, the Provisional Orders for the Army Materiel Command's Acquisition Center were amended to add the contracting offices at Natick, the Army Research Laboratory, and the Army Research Office to our organization. That gives us a grand total of more than 300 personnel. The new AMCAC will obligate well over \$1 billion this fiscal year. The amended Orders have also transferred the AMCAC from the Test and Evaluation Command (TECOM) to the Soldier and Biological Chemical Command (the former CBD COM). For the contract specialists, contracting officers, buyers and clerks of the "old" AMCAC, this change should be almost transparent.



COOPERATIVE R&D WITH INDUSTRY AND ACADEMIA

Recent significant achievements and actions in our continuing commitment to *technology transfer* follow:

A new requirement by the Department of Defense is that all labs must provide the Deputy Director DDR&E with a Technology Transfer Business Plan. This plan must include a near- and long-term strategy for transferring technology via Cooperative Research and Development Agreements, Patent Licensing Agreements, and Memorandum of Understandings, human and financial resources, performance measures, and a review of the accomplishments for the year.

Over \$94,000.00 was received the first part of August as payment for various work under present Testing Service Agreements and Cooperative R&D Agreements with Battelle, ETG, and STC. Our Technology Transfer Program continues to grow at a rapid rate.

In November, the Edgewood CB Center and the Natick Soldier Center fielded an exhibit in Boston at the **Technology 2008 Show**. The Edgewood CB Center was also represented in a joint exhibit with the Army Research Laboratory and the Armament RDE Center with photos and products from our Computer Aided Engineering Team's Rapid Prototyping Lab.

Northeastern Maryland Technology Council (NMTC)

In partnership with the Northeastern Maryland Technology Council, the Edgewood CB Center sponsored Harford and Cecil County high school math and science student tours of our facilities. Over 70 students, teachers, and the Deputy Superintendent of Cecil County schools visited our Computer Aided Design, Computer Aided Engineering, and Rapid Prototyping Teams' facilities. The students were then taken to the Experimental Fabrication Shop to see how the computer designs were used for Computer Aided

Manufacturing. The students were provided with information on summer employment and the George Washington University Science and Engineering Apprentice Program.

Visit the Northeast Maryland Technology Council web site at:

www.geosol.com/nmtc/index.htm

APG Science and Technology Board

In September, Mr. Robert Gross represented SBCCOM at the APG Science and Technology Board meeting, which was held at the HEAT Center. Discussions were held on having a Technology Symposium for all of APG next year. An APG Science and Technology Brochure is nearly completed. It lists all the RDE capabilities at APG including SBCCOM and how to access them. The APG Science and Technology Board has a web site at:

<http://stb.apg.army.mil>.

Cooperative R&D Agreement (CRDA)

Under an existing CRDA, we worked with STC on a proposal for use of the Flow Cytometry Lab in a bid to DARPA on a solicitation on Environmental Bioagent Detection. STC will use the lab at 2-1/2 man years per year for two years and the Edgewood CB Center will support with 1-1/2 man years per year.

A CRDA was signed with the University of Maryland for a cooperative effort in physiology testing and research of protective masks with the Edgewood Center.

A CRDA was signed with EG&G to demonstrate the proof-of-principle of proprietary technologies for rapid detection and identification of biological warfare agents. This could lead to the development of an immunoanalyzer. Dr. Jay Valdes is the Center's Principal Investigator.

The Natick Soldier Center sponsored a working meeting between Boston Emergency Management Agency and representatives from the Office of Special Technology-Technical Support Working Group and GEOMET Technologies. GEOMET is under contract to develop low cost chem-bio individual protective equipment for emergency first responders. The City of Boston Fire Department, Police Department, Bomb Squad, and Emergency Medical Service personnel wore the prototype equipment and provided excellent feedback on issues such as sizing and mobility. Access to these city emergency response agencies was feasible under a CRDA.

Patent License Agreement (PLA)

In July, EAI Corporation paid a PLA royalty to the Edgewood CB Center for Air Transportable Modular Analytical Laboratory technology developed by Monica Heyl and Dennis Reutter (Ref: U.S. Patent 5711916). This laboratory is capable of performing sophisticated chemical analyses any place inside and outside the laboratory environment.

Patents

A Patent Application (DAM 474-97, serial number 09/152,478) concerning new analytical methodology to qualitatively and quantitatively determine VX vapor was recently filed. The inventors are Kwok Ong, Jacob Barnhouse, and Juan Cajigas of the Engineering Directorate. Implementation of this analytical methodology has already enhanced the Edgewood CB Center's capability to evaluate candidate chemical agent detectors and has potential applications elsewhere.

Testing Service Agreement (TSA)

Government laboratories are authorized, for an appropriate fee, to test materials, equipment, models, computer software, and other items for any person or entity, according to the Interim Draft Department of defense (DO) guidance implementing 10 U.S.C. 2539b, "Authority to Sell," April 17, 1997.

To make this process effective and efficient here at the Edgewood CB Center, we prepared procedures, and we are having great success.

A TSA was completed with Duke University and sent to the Technical Director for signature.

A TSA with and Battelle is being finalized to perform tests on smoke formulations and devices.

Met with Monica Jakubowski, Director of Environmental Operations, and Charles Speranzella, President of EAI Corporation, to discuss partnering on performing analysis of various types of samples after a terrorist event. Dr. Dennis Reutter and Dr. Dupont Durst also attended. A sample TSA was provided to EAI for completion, to start the TSA approval process.

New Business Area

The Edgewood CB Center facilitated a meeting between Mr. Bill Swansiger of Sandia National Laboratories and Mr. Dan Nowak of the ACADA Team. Mr. Swansiger has a project to investigate the protection of DOE nuclear storage facilities against chemical agent attack. As the first part of the project, Sandia will procure four GID-3 ACADAs and technical consulting services from the Edgewood CB Center to run a year-long monitoring test at Los Alamos. In the next phase of the project, Sandia and Edgewood CB Center collective protection personnel will look at installing collective protection at the nuclear facilities.

The Edgewood Center also facilitated a meeting with The Center for Marine Biotechnology - University of Maryland to discuss Edgewood CB Center support to the University on their studies of Pfiesteria. The University received a federal grant, and they are looking at support that we might be able to provide.

Miscellaneous

Participated in Tech East '98, the **9th Annual Technology Transfer Exhibition**, in Boston. This

exhibition encompassed six shows and symposiums - Photonics East, Electronic Imaging International, New England Design and Manufacturing Expo, Technology 2008, Small Business Tech Expo, and Small Business Innovation Research (SBIR). We staffed two exhibit booths, one in partnership with the Natick Soldier Center on Cooperative R&D Agreements (CRDAs), and one with Army Research Laboratory and Armament Research, Development and Engineering Center for CAD/CAE and Rapid Prototyping. In the area of CRDAs, Testing Services Agreements, and SBIRs, we have 25 prospects for partnering on various subjects and facilities.

POC: Mr. Roy C. Albert, Office of Research and Technology Applications, Commercial (410) 436-4438, DSN 584-4438, email address is roy.albert@sbccom.apgea.army.mil



TECHNICAL INDUSTRIAL LIAISON

Small Business Innovation Research (SBIR)

Solicitation 98.2 closed in August. The Edgewood CB Center received 35 proposals addressing five separate topics as follows:

- A98-143--Automated real time screening of recombinant phage displayed libraries (2)
- A98-144--Upward Looking Unattended Ground Sensor for Enhanced Stand-off Chemical Detection (18)
- A98-145--Soldier Chemical & Biological Defense Protective Equipment Design & Product Evaluation Tool (3)
- A98-146--Development Of A Light Weight Sampler For Biological Agents (9)
- A98-147--Modeling of Flow Dynamics for Mask Design Optimization (3)

In early November, we were notified that four proposals were selected for funding. Those proposals address the following subjects:

- Automated Real Time Screening Of Recombinant Phage Displayed Libraries (2)
- Upward Looking Unattended Ground Sensor for Enhanced Stand-off Chemical Detection (1)
- Development Of A Light Weight Sampler For Biological Agents (1)

Unfortunately, no proposals were selected for the following topics:

Soldier Chemical & Biological Defense Protective Equipment Design & Product Evaluation Tool

Modeling of Mask and Machine Interfaces for Mask Design Optimization

All Phase I contracts must be awarded in December.

Earlier this year, two Phase II proposals were selected for funding. Those proposals address two separate technologies to develop obscuration by biological means. A third Phase II proposal was approved for funding. It addresses the development of a standoff man-portable chemical/biological sensor.

Solicitation 99.1 opened on October 1st. It includes four topics from this Center.

This office has received a call for topics for the 99.2 Solicitation, which opens next May.

Independent Research & Development (IR&D)

IR&D is performed by contractors, with their own money, for the purpose of getting smart in a particular research area or pushing the state-of-the-art so that the contractor can better compete for future contracts. It is an allowable expense that contractors can include in their overhead rates. Therefore, major defense contractors are required,

by law, to report annually on their IR&D that has defense application. Defense Technology Information Center compiles all of these IR&D reports into a database, which is available on a CD-ROM. Our TILO recently received the FY98 database and are searching the database for projects that pertain to CB defense. A summary of those projects will be supplied to our Research and Technology Directorate.

Broad Agency Announcement (BAA):

In September, a contract was awarded to Mine Safety Appliances Company, Pittsburgh, PA, in the amount of \$245,775, as a result of a proposal submitted under BAA 98-1. The effort is titled, "Develop an Electrospray Field Spectrometer to Meet the Joint Chemical/Biological Agent Water Monitor (JCBAWM) Chemical Detection Requirement."

DISTINGUISHED SERVICE AWARD

On November 3rd, MG Doesburg traveled to McLean, VA, to present this award to Ms. Anne Marie Morton of TRW for her outstanding efforts in the development and operation of the Chemical Accountability Management Information Network (CAMIN) in support of the Stockpile Operations Group.

On December 1st, Mr. Parker traveled to South Bend, IN, to present this award to SBR Technologies. They were recognized for their outstanding service in support of the Demilitarization Alternative Technologies Program. The company designed and operated bioreactors for mineralization of the neutralization products of chemical warfare agents. SBR Technologies engineers also provided critical engineering consultation to several government agencies and contractors.

POC: Mr. Ronald P. Hinkle, Technical Industrial Liaison, Commercial (410) 436-2031, DSN 584-2031, or email rphinkle@apega.army.mil.

***Scientific and Technology Objectives
Advanced Technology Demonstrations***

The SBCCOM's Edgewood CB Center currently has three (3) STOs and one (1) ATD STOs:

III.K.04. "Millimeter Wave Screening"

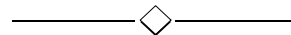
III.K.07. "Millimeter Wave Material and Dissemination Technology"

IV.F.03. "Agent Impermeable Membranes for Lightweight Chemical Protection"

ATD:

III.K.03. "Integrated Biodetection"

POC: Dr. Chen Hsu, Commercial (410) 436-5252,
D S N 5 8 4 - 5 2 5 2 , o r e m a i l
chen.hsu@sbccom.apega.army.mil.



***1998 ARMY
SUMMER FACULTY PROGRAMS***

A ceremony was held on August 5th by Mr. Parker, the Deputy to the Commander, to recognize the contributions of the summer faculty participants. The seven summer faculty participants were from the high school science and math faculties and one faculty from Lamar University. The summer faculty program was completed the end of August. We appreciate the contribution from the summer faculty participants to the research and development projects and the support of all sponsors.

INTERNATIONAL COOPERATIVE R&D



Exchange Scientists at the Edgewood CB Center

The U.S. Army Materiel Command and the Department of the Army approved the assignment of Mr. Stuart Reeman of the United Kingdom (Porton Down) to the Edgewood CB Center under the US/UK Engineer and Scientist Exchange Program's Memorandum of Understanding. Mr. Reeman was assigned to work with Pete Stopa on flow cytometry for a one month period beginning in October 1998. During this period, Mr. Reeman worked with U.S. personnel familiar with flow cytometry and learned U.S. procedures. It is hoped that this exchange will be exploited under TTCP TP-10 upon Mr. Reeman's return to Porton Down, and that an equitable collaboration may be established.

Mr. Kibong Choi from Korea reported to the Edgewood CB Center to start his one year assignment under the ROK/U.S. Engineer and Scientist Exchange Program on 30 November 1998. His assignment is with the Bio Aerosol Research Team, Research and Technology Directorate, where he will engage in research involving the characterization of aerosol particle size and mass concentration measurement equipment. He shall operate this equipment following established procedures to physically characterize non-hazardous inert and biological aerosols.

Foreign Visitors

MG John Russell-Jones, the Assistant Chief of the Defence Staff for Operational Requirements (Land Systems) for the United Kingdom, visited us in September. MG Russell-Jones discussed the continued need for cooperation between the UK and the United States on problems in chemical and biological defense, and was very pleased with the degree to which that collaboration has been occurring, especially in the past five years. Briefings on the domestic preparedness program, PM Smoke, the RDA Business area and PM NBC Defense were presented. In addition, briefings were also given to MG Russell-Jones on two ongoing collaborations with the UK, the CS Riot

Control Grenade, and the JCAD/LCAD cooperative program. In both cases, UK involvement has been essential to the success of the U.S. programs, both permitting a tremendous cost savings, and providing alternate technologies. MG Russell-Jones expressed his desire to see this level of cooperation continue, and expressed hopes that additional cooperation in the CB area may be identified.

MG Kurt Blixt, Chief of the Army Materiel Command, FMV, visited SBCCOM in October. He was accompanied by BG Isberg, Chief of Forces, Land Department; BG Rosenqvist, Military and Assistant Defense Attach E9, Swedish Embassy; COL Ostlund, Commander of the Test Range; and LtCol Sillen, Head of International Relations. The Swedish delegation was welcomed by COL Galles and was provided a briefing on the structure of the new command. The visitors were also briefed on the RDA and CB Center Programs, Domestic Preparedness, Toxicology, and Nuclear, Biological, and Chemical Defense Systems. Because of the recent ESEP assignment of Dr. Rune Berglund to the Center, a collaborative effort on ecotoxicity of chemical warfare agents and smoke materials and their precursors and breakdown products has been identified as a possible Project Agreement (PA) under the US/SW Technical Research and Development Project (TRDP) Memorandum of Agreement. A draft PA is currently being prepared for consideration under the TRDP Program.

Visit to Centre d'Etudes du Bouchet, France

Dr. George Famini visited the French chemical and biological defense establishment, Centre d'Etudes du Bouchet (CEB) in Petit Le Vert, France in October. The new director of CEB, COL (soon to be BG) Gilles Fernandez, has been at CEB for approximately one month, and has taken over as the FR representative to the US/FR NBC General Officers Working Group. The visit had two primary objectives: to review current cooperative activities and exchanges under the existing Data Exchange Agreements and PA; and to identify new areas for possible cooperation. During the individual briefings, several new topics

were discussed which will fit under current DEAs or under the LSCD PA. Of special note are:

a) The French are particularly interested in purchasing the ETG Biodetector if some agreement can be worked out with the Joint Program Office for Biological Detection for purchasing the antibodies. This topic will be discussed later this month during a visit of Dr. Pascal Stephan to the Edgewood CB Center and the Joint Program Office under the auspices of DEA 151.

b) The French also expressed interest in exchanging results/test data from the urban field trials held in Tel Aviv last year. This information will be considered for release under either 1031 or the LSCD PA.

c) The French have become very interested in the ecotoxicity of Chemical Warfare Agents and their breakdown products. This sort of information is very pertinent to the types of information currently being exchanged under Data Exchange Agreement 1285, and initial discussions are planned during the visit of Daniel Froment to the CB Center.

The French thanked us for the loan of the XM2, which permitted them to try out several aerosol collection technologies. The XM2 is expected to be returned within the next two months.

Multilateral Cooperative Programs

In September, Ms. Juanita Keesee represented the Standing Chairman, Quadripartite Working Group on Nuclear, Biological, and Chemical Defense, at the Tenth Meeting of the Washington Standardization Officers/Standing Chairmen's Meeting at the Primary Standardization Office in Rosslyn, VA. The major topics discussed were the Coalition Operations Handbook, Exercise Rainbow Serpent, Focus 2000, and the Corporate Plan.

In September, the United Kingdom hosted the Program Officers/Requirements Officers meeting at Porton Down. In preparation for this meeting, Mr. Parker, U.S. Program Officer, hosted a U.S.

Position Meeting in August, to review the progress of the Memorandum of Understanding on Research, Development, Production, and Procurement on chemical, biological, and radiological defensive equipment. He received briefings on the ongoing International Task Forces (ITFs) on Assessment of Hazardous Materials, Virus Materials, and Medical Countermeasures to ITF-28 (New Compounds) Materials. He was also briefed/provided information papers on the progress of the Test and Evaluation Working Group; the Antibody Development Working Group; the current assessment and program status of Genetically Engineered/Emerging Threats; the Joint Chemical Agent Detector Program; the Light Vehicle Obscuration Smoke System; and Site Remediation and Decontamination. Mr. Parker agreed with the positions presented. Information on the Medical Countermeasures Coordinating Team and information to prepare a U.S. Program update were requested for his use during the meeting.

The semi-annual Program Officers/Requirements Officers (PO/RO) meeting of the Memorandum of Understanding of the Research, Development, Production and Procurement of Chemical and Biological Defense Materiel was held at the CBD Sector, Porton Down, UK, in September. The POs reviewed the status of current cooperative efforts, and exchanged relevant information on current defense initiatives. The UK PO, Dr. Graham Coley, provided an update of the Defence Evaluation and Research Agency (DERA) efforts to privatize under the Public Private Partnership. At this point, it is unclear if the CBD efforts will be privatized with the rest of DERA, or if Porton Down will revert back to the Ministry of Defence. According to Dr. Coley and Mr. Paul Taylor, Managing Director Porton Down, the DERA Chief Scientist, Sir David Davies briefed OSD officials on the full extent of the privatization in late October.

The POs continued ITF-31 on Virus Materials, ITF-33 on Modification of Industrial Chemicals, and ITF-34 on Toxicity of ITF-28 Compounds and the POs accepted the final report of ITF-32 on Operations in a BW Environment. The POs

authorized a new ITF (35) on the Concepts of Operations in a Chemical Environment. The POs have accepted the MOU Business Plan developed by the Executive Officers, agreeing that this is an essential document for providing the Steering Group with a “plan of action.”. In addition, the business plan will provide to prospective “customers” an idea of where the MOU has been regarding cooperative efforts and where it is intending to go.

In September, NATO Project Group 31 (PG.31) on “Non-Corrosive, Biotechnology-Based Decontaminants for CBW Agents,” held a very successful eighth meeting at the Centre d’Etudes du Bouchet (CEB) Test Facility, Cazaux, France. PG.31 currently consists of France, Germany, the UK and the US (lead nation). Italy recently requested membership in PG.31 and attended their first meeting as an observer. The primary focus of the meeting was demonstration of two sets of live chemical agent trials with enzyme-based decontaminants. In both trials, with a recombinant squid enzyme from Germany and a recombinant bacterial enzyme from the United States, >99% destruction of the agent was achieved before the first samples were taken at 15 minutes. A live agent demonstration was conducted for approximately 25 observers representing 10 nations and NATO Land Group 7 (LG.7) (Chairman and Secretary). Considerable interest in the enzyme-based systems was generated and inquiries for additional information were made by several nations.

Dr. Joseph DeFrank, PG.31 Chairman, participated in the fifth meeting of LG.7 at NATO Headquarters, Brussels, Belgium in September. Dr. DeFrank reviewed the outcome of the demonstration, described current research efforts of PG.31 members, and participated in discussions on the “way ahead” for fielding and commercializing NATO standardized enzyme-based decontaminants. During the LG.7 meeting Turkey announced that it also was interested in becoming a member of PG.31 and will attend the next meeting (Cazaux, FR, 24-28 May 99) as an observer.

In October, Mr. William Klein and Ms. Juanita Keesee attended the Executive Quadripartite Working Group on NBC Defense 98 Meeting. Each of the three other Quadripartite Armies was represented. In addition, the Air Standardization Coordinating Committee Working Party 84 (ASCC WP 84) on NBC Defensive Measures was represented by its Chairman and members from the U.S. and the UK. As a result, the bulk of the first meeting day was joint with our Air Force counterparts. The principal focus areas were joint projects, the way ahead on selected projects, the ABCA Corporate Plan, milestone changes, below-the-line tasks, and the Coalition Operations Handbook.

Dr. George Famini participated in a meeting in October with the UK and CA at the PM Joint Vaccine Acquisition Program offices at Fort Detrick. The meeting continues the technical discussion and dialogue for the development of a project arrangement (PA) under the new US/UK/CA Chemical, Biological, and Radiological Memorandum of Understanding, which was expected to be submitted for signature shortly after the memorandum is signed by the three countries. The PA will provide a mechanism for the cooperative development of vaccinia vaccine, and will permit the UK and CA to “buy into” the U.S. development and acquisition efforts. The PA marks the first real cooperative effort among the US/CA/UK in CB defense where funding has been “pooled” in order to collectively obtain a single product. As a result of the product arrangement, the PM Vaccine Acquisition Program is expected to be able to begin final development of additional vaccines ahead of their current schedule.

In November, the newly formed Action Group 45 of the Technical Cooperation Program (TTCP) Chemical, Biological and Radiological Defense Group met at the Edgewood CB Center to discuss cooperation and collaboration in the remediation of toxicology gaps. The AG consists of representatives from the US (S. Thomson, chair), CA (R. Bide), UK (J. Jenner) and AS (S. Michelson, not present). AG 45 is the first US/UK/CA/(AS) group in four years to consider

data gaps in the toxicology of chemical agents. As such, the AG has, as its terms of reference, to exchange current and recent data, and if feasible, develop a quadripartite collaborative program.

Dr. George Famini met with COL Krystof Chomiczeiwski, Commander, and COL Michal Bartoszcze, Deputy Commander, of the Polish Military Institute of Hygiene and Epidemiology. Several items were discussed, including the current state of IEA 1556, which currently has very active exchange in both directions. The upcoming lab trials at Dugway Proving Ground were also discussed. The Polish will be participating this year at Joint Program Office for Biological Defense System's request, and will be bringing a modified bioluminometer to test. This marks the first time the Polish have participated in

the Joint Program Office's Joint Field Trial process. Further, the Polish are the only foreign participant in this year's lab trials. Also discussed was the status of the US/PL ESEP Master MOU.

TTCP Establishes Web Site

The Washington Deputies of The Technical Cooperation Program (TTCP) announced the formation of a home page for general information concerning TTCP at:

<http://www.ttcp.osd.mil>

POCs: Dr. George R. Famini or Ms. Juanita M. Keesee, International Programs Office, Commercial (410) 436-2552/5376, DSN 5 8 4 - 2 5 5 2 / 5 3 7 6 , e m a i l g r f a m i n i @ a p g e a . a r m y . m i l o r j m k e e s e e @ a p g e a . a r m y . m i l .

CUSTOMER SATISFACTION

"Satisfaction of our customers' requirements defines quality for us."

At the Edgewood CB Center, we are striving to improve customer satisfaction. Recently, Dr. Resnick, Director of Research and Technology, selected a *client advocate* to develop a long-term working relationship with his customers. The *client advocate* would be someone free of the direct workload from the customer and would take a strategic look at partnering opportunities. The pilot client is the DoD's Office of Special Technology, and Mr. Jeff Hinte, Advanced Systems Concepts Directorate, was selected as the *client advocate*.

Remember our email address for customers to send their comments or inquiries is **cu-team@apgea.army.mil**



1998 LIFE CYCLE COST REDUCTION AWARD PRESENTED TO THE M157A2 SMOKE TEAM

The M157A2 Smoke Generator Set (SGS) Program was selected as the U.S. Army recipient of the **1998 Department of Defense Logistics Life Cycle Reduction Award**. Dr. Gansler, Under Secretary for Acquisition and Technology (A&T), presented the award to the M157A2 team during the 1998 Logistics Reform Focus Day on October 1st at the Pentagon Courtyard.



The M157A2 Integrated Product Team eliminated the reliance on MOGAS in compliance with DoD Directive 4140.43 on fuel standardization and

eliminated over 142 sole source parts while efficiently addressing significant safety and operational deficiencies through a full-scale materiel change program. By employing acquisition reform strategies such as Modernization Through Spares, teaming/partnering and technology insertion, the M157A2 team achieved a life cycle cost reduction of over \$10 million with an investment of less than \$0.4 million.



Team members to receive a special citation were:

Richard W. Decker II, Sys Mgr, PM Smoke
Janice A. Nordin, Dep Sys Mgr, PM Smoke
Willard R. Betts, Sys Engr, PM Smoke
Paul G. Rambo, Logs, PM Smoke
Terry L. Thurman, Engr Tech, PM Smoke
Bill Adams, R&T, Edgewood CB Center
Sheri Morris, Item Mgr, TACOM-ACALA
Richard A. Dixon, Proj Engr, ERDEC@ RIA
David Meli, Minowitz Manufacturing Co.
Charles Embree, DCMC-Detroit

MG Doesburg, our commander, met with the M157A2/VEESS team on October 5th to congratulate them on winning the 1998 DoD Life Cycle Cost Reduction Award for the Army. MG Doesburg commented that the award was quite a significant honor and there was a place for the award in our Headquarters Building.

POC: Ms. Janice A. Nordin, Commercial
(410) 436-2838, DSN 584-2838, or email
janordin@apgea.army.mil

ADAMSON AWARD

Army Research Office Principal Investigator, Professor John Yates of the University of Pittsburgh will receive the “Adamson Award for Distinguished Service in the Advancement of Surface Chemistry” given by the American Chemical Society — the top award in surface science. For the past decade, Dr. Yates has worked on catalysts to destroy chemical weapon agents in close collaboration with Army scientists at the Edgewood CB Center. His students have traveled to Edgewood to use special equipment and Dr. Yates has also served on numerous advisory panels to the Army. During the time the Army has provided support to his research, Dr. Yates has won five major awards and been elected to the National Academy of Sciences.

HAMMER AWARDS

Two Teams from the U.S. Army Soldier and Biological Chemical Command at Natick, MA, will receive Vice President Gore’s coveted “Hammer Award” for their reinvention successes. The Technology Transition Team and Partnering with a Field Unit Team will be honored in ceremonies currently being planned. The award symbolizes achievement in helping to make a government that works better and costs less.

ORDER OF SAINT MAURICE

The “Order of Saint Maurice,” the patron saint of the Infantry, was awarded to Ms. Carol Fitzgerald, MOUT ACTD Technology Program Manager, Natick Soldier Center in October. It was approved by the President of the National Infantryman’s Association and the U.S. Army Chief of Infantry in September, “for distinguished contribution to, and loyal support of, the Infantry, and demonstrating gallant devotion to the principle of selfless service embodied by the American Infantryman.” To date, 478 individuals (military, civilians, and foreigners) have been inducted into the “Order of Saint Maurice,” typically having served the infantry for 30+ years, Ms. Fitzgerald being the 16th civilian and the 4th female.

HUMAN INTEREST STORIES

SCIENCE AND ENGINEERING APPRENTICE PROGRAM (SEAP).

The official closing of the 17th year of the SEAP was held on August 14th in the Conference Center. The 19 high school students presented technical papers to their peers and a small group of mentors and parents on their scientific or engineering project. During the summer, students worked side-by-side with an Edgewood CB Center engineer or scientist in a mentor-apprentice relationship. Many students worked on technical programs that are on the cutting edge of science; all worked on programs vital to the Center’s mission. This program continues to be an invaluable opportunity for the Center to expose students to science, math, and engineering.

VOLUNTEERS FOR MEDICAL ENGINEERING (VME) INITIATIVE

In November, we held a kick-off meeting to start a Volunteers for Medical Engineering Team at SBCCOM. Volunteers for Medical Engineering is a Maryland tax-exempt, charitable organization dedicated to improving the independence of the elderly and disabled through the use of innovative engineering. Ms. Jan Hoffberger, Executive Director of Volunteers for Medical Engineering was the keynote speaker at the meeting. Volunteers for Medical Engineering provides an excellent opportunity for skilled SBCCOM professionals and community members to “give back” to those with disabilities by donating their time and talents to designing and making assistive devices. During 1998, VME and its volunteers have served almost 200 Maryland clients through referral to resources, loans of computer equipment, and design and construction of innovative equipment. An operating permit was signed by the APG Legal Office in November to allow the VME Team to operate at SBCCOM.

IMPORTANT

<i>Upcoming Conferences</i>		
<i>Date and Place</i>	<i>Title</i>	<i>POC</i>
<i>21-25 June 1999</i> <i>Edgewood RDE Center</i>	<i>NBC Symposium</i>	<i>Mr. David P. Labar</i> <i>(410) 436-5272</i> <i>email: dplabar@apgea.army.mil</i>
<i>22-23 June 1999</i>	<i>DOD CB APBI</i>	<i>Mr. Ronald P. Hinkle</i> <i>(410) 436-2031</i>
<i>24 June 1999</i>	<i>IR&D Conference</i> <i>on CB S&T</i>	

1998 PROFESSIONAL DEVELOPMENT CONFERENCE

"EXCELLENCE IN ACTION"

Excellence in Action was the theme of our fourth Annual Professional Development Conference, which was held in September. This conference was sponsored by the Edgewood RDE Center, now known as the Edgewood CB Center. The morning began with opening remarks by Ms. Donna Brown, Chairperson, who was followed by Colonel C. Rundell Galles, the command's Chief of Staff, and Ms. Colleen Cairns, of the USDA Graduate School, who managed and coordinated the day's events.

The keynote speaker was Mr. Bob Somerby, "Washington's funniest political comedian," who lives in Baltimore. His topic was **Material World**, and he impressed upon us the subliminal marketing messages and the pitfalls of sales. His use of cereal boxes and other props visually reinforced his message. Following Mr. Somerby's address, attendees chose one of two concurrent sessions led by motivational speakers:

- *The Power of Positive Perspectives: How to laugh at Stress* by Ms. Terri Greenberg, Adjunct Faculty, Graduate School, USDA.

- *Prescription for a Dysfunctional Office* by Ms. Pat Moore, "Queen of Clutter," Professional **Speaker** and Author.



After lunch, the audience was delightfully entertained by Mr. Julius "Westy" Westheimer, Financial Broadcaster and Author. Westy gave us many helpful hints on investing for our future and some good "do's and

don'ts of investing." He said the most important don't is "don't try to second guess the market."

Following Mr. Westheimer, the participants again had an opportunity to choose from two topics for concurrent sessions:

- *Don't Die Until You're Dead* by Steve Siemens, President/Founder of SIEMENS PEOPLE BUILDERS.

- *Make Your Memory Work For You* by Ms. Shelley Price, Adjunct Faculty, Graduate School, USDA.



The closing session was a speech by Mr. James Amps, who is an entrepreneur and author. This was a return appearance by the dynamic Mr. Amps, whose topic this year was “*Excellence in Action/Personal Accountability*.”

The **Professional Development Conference** has become an annual event. The concept emerged after several administrative employees had attended similar conferences in the Baltimore area. A committee from the Edgewood CB Center, which was formed around these key employees, works to make this day a success.

This year’s committee was co-chaired by Ms. Donna M. Brown and Ms. Phyllis M. Ostrom. Other members on the committee were Ms. Patricia Belcher, Ms. Frances Chubb, Ms. Emily Fowler, Ms. Barbara Frank, Mr. Karl Gerhart, Ms. Kay Gilbert, Ms. Mary Hagy, Ms. Chris Hignutt, Ms. Barbara Knapp, and Ms. Karen Vado.

Each year a different theme is chosen to provide attendees with a day for personal, professional, and organizational growth. Participation is offered to the entire command workforce.

This year’s conference received excellent overall ratings on the evaluations.



POCs: Ms. Donna M. Brown (email donna.brown@sbccom.apgea.army.mil) and Ms. Phyllis M. Ostrom (email phyllis.ostrom@sbccom.apgea.army.mil). Co-Chair of the Professional Development Conference Committee, Commercial (410) 436-2456 or DSN 584-2456





Edgewood Enterprise employees participate in many workshops, symposiums, and conferences; and many are recognized by outside organizations for their exemplary performance. It is our pleasure to share this information.

In July –

Three members of our Standards, Specifications and Packaging (SSP) Team, Nancy Waltman, Christopher Williamson and Dean Hansen, attended the **Packaging, Handling, Storage Transportation Conference** sponsored by the Naval Warfare Assessment Station. The conference was attended by 120 representatives of various ship and Fleet/Shore Activities from as far away as Japan. Mr. Dean Hansen made a presentation on his experiences in packaging materiel in the Persian Gulf following Operation Desert Storm. The conference sponsors sent CBDCOM a letter recognizing Mr. Hansen's presentation which said, "contributed to a very productive and successful conference. The dialogue and valuable exchange of information generated at the conference was, in part, a result of his active participation."

The **AMC Distributed Simulation Working Group Meeting** was held at the U. S. Army CBDCOM. The first day of the meeting included tours of developmental CB Defense Equipment; Computer Aided Design and Engineering and Virtual Prototyping capabilities, and CB Distributed Interactive Simulation facilities associated with Simulation Based Acquisition (SBA). The second day was devoted to meetings of the various subgroups.

In August –

Ms. Monica Heyl, AMC Treaty Laboratory, was invited to chair and organize the poster session at the **Gordon Research Conference on Illicit Substance Detection: Chemical and Biological**, which was held at Salve Regina College in Newport, Rhode Island. Information about this conference was available on the www at <http://www.grc.uri.edu>.

Roadshow VII, hosted by CBDCOM was a huge success. The Executive Session and workshops were attended by approximately 100 personnel from multiple acquisition disciplines. TECOM and CBDCOM personnel also participated in two "real" partnering workshops with their respective contractors. Also during the **Roadshow**, Ms. Janice Nordin, CBDCOM, and Mr. Dave Meli, Minowitz Manufacturing, presented a joint briefing on successful partnering and modernization through spares on the M157A2 program.

Mr. Rick Decker and LTC Mike Davis, PM-Force Provider from Natick gave a joint PM-Smoke/PM-Force Provider presentation on Modernization through Spares at the **Army Acquisition Workshop**, Fort Monmouth.

At the request of the School of Military Packaging, Packaging Specialists Mr. Dean Hansen and Mrs. Nancy Waltman made presentations to the **Advanced Preservation and Packing Course**. Mr. Hansen's presentation focused on U.S. Army packaging operations in Saudi Arabia during operations Desert Shield/Desert Storm/Desert Return, and Mrs. Waltman's on Government contractors and Military Packaging. The course was attended by personnel from the U.S. Army, Air Force, Marine Corps, Defense Logistics Agency, and Government Contractors.

In September –

CBDCOM personnel Mark Schlein and Lester Strauch presented a 90-minute seminar, “Concept to Product through Concurrent Design Optimization” at the **Chesapeake Electronic Show** in Chantilly, VA. The seminar focused on the integration of Computer Aided Design and Development tools into a concurrent process which can dramatically improve design optimization and Time-to-Market. The presentation also included case studies and an overview of current technology in several disciplines including CAD, CAE, CAM, reverse engineering, rapid prototyping and simulation.

In October –

Dr. George Famini attended an **Industry Day** sponsored by the Canadian Embassy. The combined seminar/exposition showcased developments in the CB defense and Counterterrorism areas made go the Canadian government (mainly at the Defence Research Establishment Suffield) and Canadian Industry.

We participated in the 2nd **Annual Review of the Biomimetic Synthesis Multidisciplinary Research Initiative (MURI) Program** of the ARO-University of California at Santa Barbara. The goal of the program is to establish a multidisciplinary research base in biomimetic processing in order to develop new material systems with dramatically improved properties and vastly expanded functionality. Researchers presented excellent results including biological and biomimetic nanofabrication analysis and control of silicon mass transport and deposition in diatoms, functionalized block copolypeptides, materials processing using biomimetics and designing structure superposition for functionality on the nanometer scale. The MURI Advisory Panel, which also included representatives from the Soldier and Biological Chemical Command, Army Research Office, Army Research Laboratory, industry, and academia, voted to recommend continuation of the program.

Ken Collins and Larry Bickford, Target Defeat Team, were guest lecturers at the National Defense University, Ft. McNair, Washington, D.C. The lecture was for the class entitled **“Non-Lethal Weapons: Acquisitions, Capabilities, Doctrine, & Strategy”** and was organized by the Institute for Non-Lethal Defense Technologies at The Pennsylvania State University’s Applied Research Laboratory. The guest lecture covered capabilities in the chemical Non Lethal arena.

Gina Newman and Mary Soubie participated in **“Chem-Bio 98 - Combating the Terrorist Threat Conference**. Sponsored by the Jane’s Information Group, the conference provided informative presentations by international experts involved in all aspects of countering CB terrorism. Speakers represented the FBI, the U.S. Army Medical Research Institute for Infectious Diseases, National Security Council, Chemical Biological Incident Response Force and the Soldier and Biological Chemical Command to list a few. The conference was insightful, providing a wide range of perspectives on the terrorist threat.

Dr. James Savage, Ms. Karen Quinn-Doggett and Mr. Robert Gross attended the **Defense Week Conference on Domestic Preparedness**.

A Joint Warning and Reporting Network multimedia demo of Digitization of the NBC Battlefield was part of the AMC Display in Washington, D.C. for the **Association of the United States Army Show**. Mr. Ed Conley was the spokesperson at the display. This display was also selected by the Army Acquisition Executive as a stand-alone display in the Executive’s office for the month of December. The display consists of a continuous loop video on digitizing NBC as well as a digitization simulation. Also included in AMC’s corporate exhibit was a Joint Service General Purpose Mask and CB Dosimeter mock-prototype incorporated on

Natick's future soldier. In addition, PM Smoke exhibited the M157A2 Smoke Generator in the outdoor venue. GEN Wilson, who presented the MACOM speech on Tuesday, October 13th, featured the Biological Aerosol Warning System during his address to plenary assembly.



M157 on Display at AUSA

Messrs. Fran Hughes and Christopher Rok traveled to Crystal City, VA, to brief the U.S. Air Force's **NBC Mask Quantitative Workshop**. Representatives from the U.S. Marine Corps and the U.S. Navy, as well as representatives from various Air Force commands, attended. The Army briefing provided a synopsis of Army and Joint Service deployments, production goals, and program issues for the M41 Protection Assessment Test System.

The U.S. Army Soldier and Biological Chemical Command and the U.S. Army Infantry Center presented a **Soldier Systems Review** to CG, TRADOC and CG, AMC, at Ft. Benning, GA. This year's review focused on soldier systems modernization emphasizing accomplishments over the past year, challenges ahead, and the path forward. Issues from the Soldier Systems Executive Integration Process Team were also presented. As part of the agenda, attendees had an opportunity to visit exhibits by the Armor, Aviation, Chemical, Engineer, Infantry, Military Police, and Quartermaster Schools and attend a ration lunch. More than 20 General Officers and Senior Executive Service members attended this year's review.

In November –

Engineers from the Natick Soldier Center and specialists from the Edgewood CB Center attended the **Technology 2008 East Conference**, which was held this year in Boston. By invitation, the Natick Soldier Center also chaired and presented papers at the U.S. Department of Agriculture **Photonics East Conference**, which was part of the overall Technology 2008 East Conference. Presented papers dealt with "Pathogen Detection and Remediation for Safe Eating." Natick's efforts to facilitate the President's Produce and Imported Food Safety Initiative (PIFSI) were presented. These included a rapid pathogen detection method, a novel system for separation and concentration of bacterial spores, and innovative antimicrobial interventions for food safety. Natick is a major contributor, on behalf of the Department of Defense, in the PIFS.

The **1998 Scientific Conference on Chemical and Biological Defense Research** was held at the Edgewood Area Conference Center. A total of 435 people attended the four-day conference. Forty-seven visiting scientists from 13 foreign countries registered to attend. The Opening Session featured a keynote address by The Honorable H. Allen Holmes, Secretary of Defense for Special Operations and Low-Intensity Conflict, followed by a CB Defense Program Review by COL John V. Wade of the Defense Threat Reduction Agency. This year's conference featured the theme of *CB Terrorism*, and a panel discussion was held on this topic. A total of 70 oral and 94 poster presentations were given at the conference. This year's **CB Defense Research Conference** was the largest (in terms of attendance) since its beginning in 1981. As in previous years, we saw an increase in the number of foreign attendees. The conference received many favorable comments from participants. In particular, the opening

session, panel discussion, and poster session were well-received.

Mr. Ron Hinkle, Technical Industrial Liaison Office, along with representatives from the Command's Small Business and Contracting Offices, attended the **3rd Annual Army Small Business Conference**. They also represented the Command at a Business Opportunities Fair, where possible future business opportunities were discussed with individual small business contractors.

By invitation, Dr. George Famini attended the **Midwest Regional American Chemical Society Meeting** and presented a paper entitled "Predicting and Characterizing Physical and Chemical Properties Through The Use of Linear Free Energy Relationships." The paper was part of a special symposium on "Real Life Applications of Quantum Chemistry" and addressed how quantum chemical results are useful in developing models for the prediction and characterization of physical, chemical, and toxicological properties. This work was jointly conducted with Lee Wilson of the Department of Chemistry, La Sierra University, Riverside, CA.

Mr. Edwin Gier attended the Fall meeting of the Scientific and Technical Information Library Automated System (STILAS) Users Group held in conjunction with the **Defense Technical Information Center's Annual Users Conference**. The Users Group serves as a means of communication between users and SIRSI Corporation, the developers of STILAS. Mr. Gier can now determine what software is required to bring the Command's STILAS system into the Graphical User Interface environment. This will allow user access to STILAS via any World Wide Web browser, such as Netscape or Internet Explorer.

Soldier and Biological Chemical Command personnel staffed an exhibit of the M157A2 "Lynx"

Smoke Generator System at the **Army's Acquisition and Logistics Initiatives Conference**, held in Washington, DC. Smoke Team personnel from PM Smoke at Edgewood and Rock Island were present to discuss the M157A2 system with Senior Army and Contractor attendees and were also able to attend the various informative Acquisition, Modernization Through Spares, and Operational and Sustainment Cost Reduction presentations and panel discussions. M157A2 exhibit poster boards detailed the efforts to reduce the Operational and Sustainment costs with the actual component parts on display. The M157A2 Smoke Generator System won the Third Annual DOD Life Cycle Cost Reduction Award for the Army in 1998 (see article on page 37).

In December –

Timothy Blades, Chief of the Center's Chemical Applications Division, presented a poster entitled, "Edgewood Chemical Biological Center's Remediation Capabilities" at the **Singapore International Symposium on Protection Against Toxic Chemicals**.

Upcoming Symposium

An **NBC Symposium** is scheduled for June 1999 and will be the first of its kind at Edgewood. It will encompass parts of the Joint Service Chemical Biological Advance Planning Briefing for Industry (APBI), Worldwide Chemical Conference, and Independent R&D Conference on CB Science and Technology. A call for agenda topics for the APBI portion of the symposium is being circulated throughout the DOD CB Defense Community.



Books, Journals, and Magazine Articles

“Radioisotope Detection, Measurement and Identification in the Field” written by the Radiac PM has been accepted for publication in the *J. Field Analytical Chemistry*.

“Thermal Stability Evaluation for Passive FT-IR Spectrometry” has been accepted for publication in a special remote sensing issue of *Field Analytical Chemistry & Technology Journal*. The author of this paper is Roger J. Combs of the Infrared Research and Science Team. This study implements the noise equivalent radiance (NER) per root Hertz which is independent of interferometer mirror velocity or spectral resolution. The investigation demonstrates the utility of assessing the FT-IR spectro-radiometric performance as a function of spectrometer operating temperature. Accurate and precise open-air monitoring requires evaluation of the FT-IR spectrometer radiometric performance as a function of the external spectrometer temperature.

“Reactions of the Nerve Agent Simulant Diisopropyl Fluorophosphate with Self-Decontaminating Adsorbents: A 31P MAS NMR Study,” by George W. Wagner (Geo-Centers, Inc.) and Philip W. Bartram (Edgewood CB Center), has been accepted for publication in *J. Molecular Catalysis A: Chemical*. The work describes the sorption and reaction of diisopropyl fluorophosphate (DFP) with alumina, an impregnated polydivinylbenzene (NaOH, polyethylene glycol and polyethylenimine), and the currently fielded XE-555 sorbent. Room temperature hydrolysis of the P-F bond of DFP was observed on all three sorbents, a reaction which effectively detoxifies nerve agents. For XE-555, 31P MAS NMR detected the competing process of micropore adsorption of DFP into the non-reactive, carbonaceous component of this sorbent.

“Degradation and Fate of Mustard in Soil as Determined by ^{13}C MAS NMR,” by George W. Wagner (Geo-Centers, Inc.) and Brian K. MacIver (Edgewood CB Center), has been accepted for publication in *Langmuir*. The work describes the sorption and reaction of mustard in sandy-loam soil. Neat, liquid mustard slowly spreads through the dry soil, becoming sorbed on the surface of the soil particles. Spreading is not observed in wet soil, where mustard remains as liquid droplets. Water-saturation of dry soil with surface-sorbed mustard results in the reformation of liquid mustard droplets. In the soil, liquid mustard droplets slowly hydrolyze in the presence of water to form the branched sulfonium ion $\text{HOCH}_2\text{CH}_2\text{SCH}_2\text{CH}_2\text{S}^+(\text{CH}_2\text{CH}_2\text{OH})_2$ (CH-TG) as the major product. A simple model based on droplet size and the relatively short half-life of molecularly-dispersed mustard in water is presented, which accounts for the persistency of mustard in soil.

TECHNICAL REPORTS

Published technical reports, when available, should be requested from the Administrator, Defense Technical Information Center, ATTN: DTIC-FDRB, 8725 John J. Kingman Road, Ste 0944, FT Belvoir, VA 22060-6218.

<i>Report No.</i>	<i>Title</i>	<i>Author(s)</i>
ERDEC-CR-259	Advanced Signal Processing and Pattern Recognition for Passive Infrared Remote Sensors, October 1998, UNCLASSIFIED - public release.	G.W. Small
ERDEC-CR-261	Design, Construction, and Performance of a Plume Generator for Remote Sensing Research, April 1998, UNCLASSIFIED - public release.	C.T. Chaffin T.L. Marshall
ERDEC-CR-266	Compact Raman Spectrograph with Fiber Optic Sampling - Phase II, September 1998, UNCLASSIFIED - limited.	M.M. Carrabba J.W. Haas K.M. Spencer T.M. Johnson
ERDEC-CR-267	Final Summary Report for the IR/MM Obscuration Reinforcing System (ORS) Technology Demonstration Program, July 1998, UNCLASSIFIED - limited.	S. Morgan M. Orr D. Hartman W.G. Rouse R.J. Malecki
ERDEC-CR-268	Armored Vehicle Protection System Based on Fiber Wafers Application, Final Report, July 1998, UNCLASSIFIED - limited.	A. Rutstein
ERDEC-CR-269	Cydril Slippery Additive, September 1998, UNCLASSIFIED - limited.	R.J. Mathis W.A. Mallow W.J. Bruchey
ERDEC-SP-057	Proceedings of the 9th International Simulant Workshop, May 1998, UNCLASSIFIED - public release.	J.E. Rhodes H.L. Cowan A.L. Skarzenski J.D. Williams P. Coon
ERDEC-SP-063	Proceedings of the 1997 ERDEC Scientific Conference on Chemical and Biological Defense Research, 18-21 November 1997, July 1998, UNCLASSIFIED - unlimited.	D.A. Berg

ERDEC-SP-065	Virtual Teaming in a Low Trust, High Risk Environment, CASHPAC: A Success Story in the Making, July 1998, UNCLASSIFIED - public release.	G.E. Collins, Jr. C.A. Eason
ERDEC-SP-066	First Joint Services Workshop on Biological Mass Spectrometry: Report from Executive Panel Meeting, October 1998, UNCLASSIFIED - limited.	S.R. Long T. Krishnamurthy A.P. Snyder
ERDEC-TR-450	Selected Physical Properties of Ton Container HD (Mustard) and VX, July 1998, UNCLASSIFIED - public release.	P.L. Abercrombie A.B. Burthrow
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